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JAN 5 1949

IRON AGE

DECEMBER 30, 1948



VALLEY MOULD & IRON CORP.

General Offices: HUBBARD, OHIO

Western Office: Chicago, Ill.

Northern Office: Cleveland, O.



As the white outline indicates, a standard unit of nearly twice the frame size would be required to do the work of Speedaire.

Dollars . . . Space . . . Weight . . . saved with **SPEEDAIRE**

ON this Oscillating Granulator, product of a well-known Philadelphia machinery builder, Speedaire effects a three-way saving:

1. 16% is saved on the cost of each reducer, as compared to conventional units.
2. Space saved by using Speedaire reduces the overall length and width of the machine base.
3. Use of Speedaire saves 110 pounds weight, reduces shipping cost and handling expense.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because Speedaire is fan-cooled, it will do more work—and deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. Speedaire can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle drive. Of course, Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

Catalog 300 describes Speedaire—enables you to figure quickly the proper sizes for your equipment. Send for a copy. The Cleveland Worm & Gear Company, 3252 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.



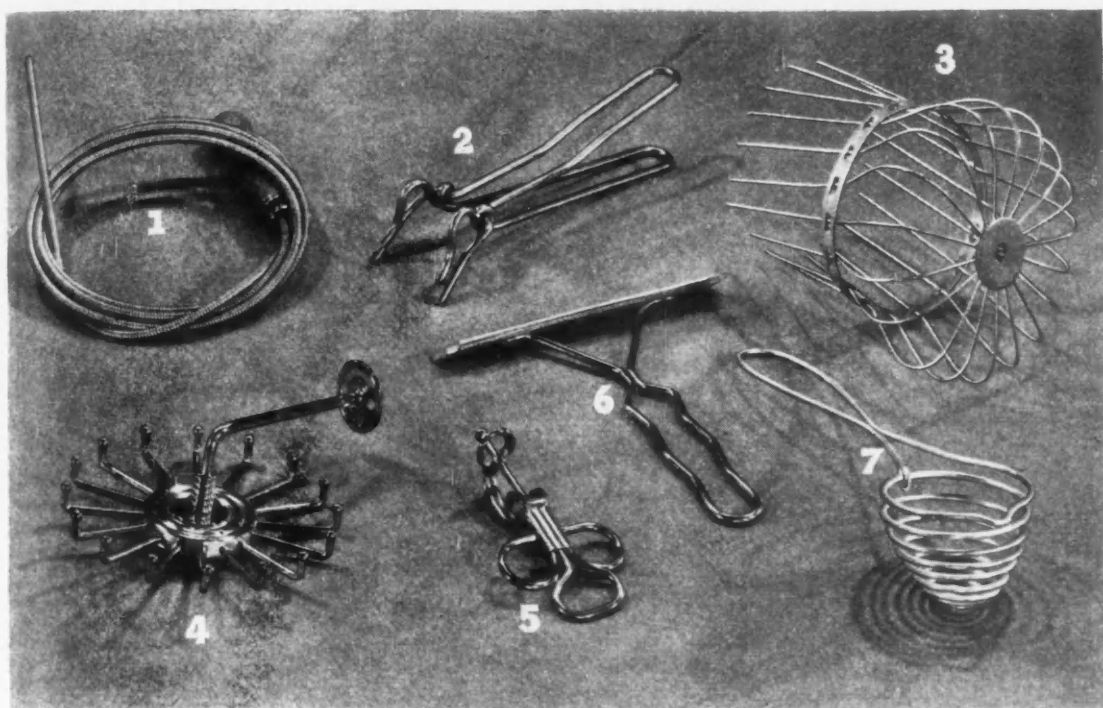
CLEVELAND

Worm Gear

Speed Reducers

How many of these wire products can you name

See how many of these gadgets you can match correctly with their names shown at the right. The correct answers, given by number, are shown at the bottom of the page. No peeking!



Cherry Pitter

Hot-Pan Holder

Drain Opener

Cravat Rack

Downspout
Strainer

Egg Separator

Squeegee

It may not be easy to identify all these products made from steel wire. But it is easy enough to see why steel is so often the material selected for wire products.

Steel wire is strong, wear-resisting, economical. Whether you want to cold-head it, draw it, or form it, steel wire is easily adapted to fast, modern methods of forming. Nothing else can provide such a wide range of physical and mechanical properties.

Making virtually all kinds of steel wire is one of our specialties. In our modern wire mills at Sparrows Point, Md., and Johnstown, Pa., we produce carbon steel wire in both standard and special grades,

and in widely varying compositions and properties.

In fact we've made steel wire for so many different applications that the wire you need is probably a grade and quality we have furnished recently. We're working at capacity to keep up with orders, but that's no reason why you should hesitate to call on us for help in developing your wire products. Perhaps our experience can be of real assistance to you right now.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation*

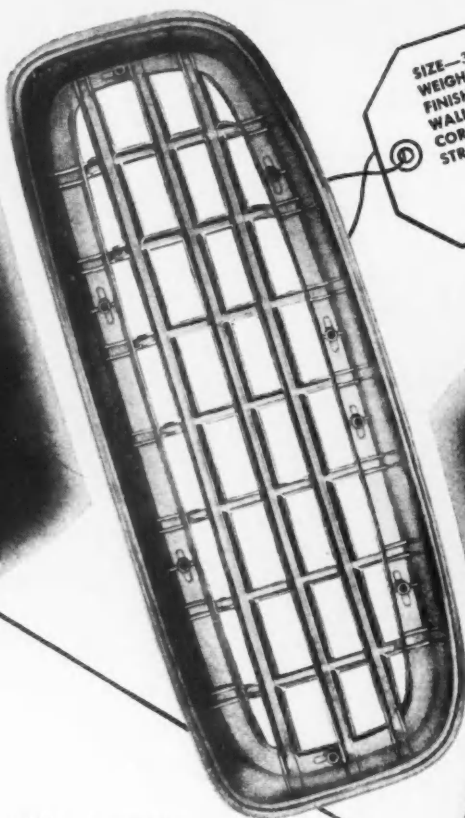
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM WIRE



1. Drain Opener
2. Hot-Pan Holder
3. Downspout Strainer
4. Cravat Rack
5. Cherry Pitter
6. Squeegee
7. Egg Separator

**massive
appearance—
through
clever
coring**



SIZE— $33\frac{1}{4}$ " x $13\frac{1}{2}$ "
WEIGHT—12 $\frac{3}{4}$ lb.
FINISH—Chromium plated
WALL THICKNESS OF THE RIBS—.070"
CORING—All grille openings cored
STRENGTH OF THE ALLOY—
Over 40,000 lbs. / sq. in. tensile
Over 40 ft. lbs. impact— $\frac{1}{4}$ " bar
(Strength values determined on test bars)

**another
successful product
designed for
ZINC DIE CASTING**

The radiator grilles of many of the current cars are built-up assemblies of die cast parts, but this particular design—for the 1949 Nash Airflyte—is a one-piece zinc die casting. Not only does a die casting meet the physical and mechanical requirements of this design (see tag on casting), but it consumes a minimum amount of metal.

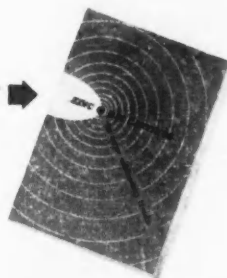
The grille casting is shown from the rear to reveal the clever coring of the horizontal and vertical ribs. The ribs thus appear to be solid sections when viewed from the front, but the coring effects a considerable saving in both metal and weight—with no sacrifice of strength! This grille is tailored to fit the car instead of vice-versa and its inherent dimensional accuracy greatly reduces assembly problems. Note, also, the cast assembly bosses.

This is just one of many successful applications for zinc die castings in the automotive industry. Typical applications in other fields of manufacture will be covered in future advertisements in these pages.



SEND FOR THIS BOOKLET →

A new booklet—just off the press—has 64 pages of photographs depicting zinc die castings in the assembly of a wide variety of products in many fields. Send for your copy today!



ZINC
FOR DIE CASTING ALLOYS

THE NEW JERSEY ZINC COMPANY, 160 Front St., New York 7, N. Y.

The Research was done, the Alloys were developed, and most Die Castings are based on
HORSE HEAD SPECIAL ($99.99 + \%$ Uniform Quality) **ZINC**

Fills Every Need for V-Belt Drives!

TEXROPE
Greatest Name in
V-Belt Drives

TEXDRIVE SHEAVES
Cast Iron with 1 to 6 grooves for A and B belts. 1 to 25 h. p. All sizes from stock.

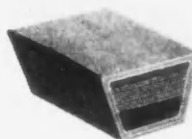


VARI-PITCH WIDE RANGE SHEAVES
Speed range up to 100%. 1 to 4 grooves, Q and R belts, fractional to 30 horsepower. Delivery good. Call your nearest District Office or Texrope dealer.

TEXSTEEL SHEAVES
Welded pressed steel with rolled edges. 1 to 6 grooves, A or B belts, 1/4 to 25 horsepower. All sizes from stock.



STANDARD CAST IRON SHEAVES
Made to order from stock patterns. 1 to 14 grooves, A, B, C, D, or E belts, 1 to 1000 horsepower. Delivery good. Call your nearest District Office or Texrope dealer.



TEXROPE SUPER-7 V-BELTS
Wide range of types, sizes and sections to suit all operating conditions. All standard sizes from stock.



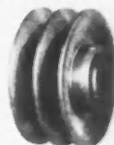
MAGIC-GRIP SHEAVES
Semi-steel with patented taper bushing. On and off in a jiffy. 2 to 12 grooves, B, C, or D belts, 2 to 250 horsepower. All sizes from stock.



SPECIAL CAST IRON AND STEEL SHEAVES
Any number of grooves for A, B, C, D, or E belts. Up to 6000 horsepower. Delivery good. Call your nearest District Office or Texrope dealer.



TEX-IRON SHEAVES
Light weight single groove sheave for fractional horsepower applications. All sizes from stock.



VARI-PITCH STANDARD SHEAVES
Speed range 9% to 28%. 2 to 10 grooves, A, B, C, D, or E belts, 1 to 300 horsepower. Stationary or Motion Control. Delivery good. Call your nearest District Office or Texrope dealer.



VARI-PITCH SPEED CHANGERS
Speed range to 375%. 1 1/2 to 75 horsepower. Single hand-wheel controls speed. Delivery good. Call your nearest District Office or Texrope dealer.

Best Delivery in the Industry!

NOW YOU CAN GET nearly every standard V-belt drive component from Texrope stocks. Even on non-stock items, Texrope delivery is the best in the industry. And Texrope is the only brand that meets every V-belt need.

Selecting a drive is as easy as looking up a telephone number in the 144 page Texrope Pre-Engineered Drive book. Covers 90% of all V-belt drives. Write today for Bulletin 20 B 6956 or see your nearest Allis-Chalmers Authorized Dealer or District Office. Also listed in Sweet's.

ALLIS-CHALMERS, 1019A SO. 70 ST.
MILWAUKEE, WIS.

A 2546

ALLIS-CHALMERS

Originators of the Multiple V-belt Drive for Industry

Texrope, Super-7, Vari-Pitch, Magic-Grip, Tex-Iron, Tex-steel and Texdrive are Allis-Chalmers Trademarks.

Texrope Super-7 V-belts result from the cooperative research of Allis-Chalmers and B. F. Goodrich; and are sold only by A-C dealers and offices.





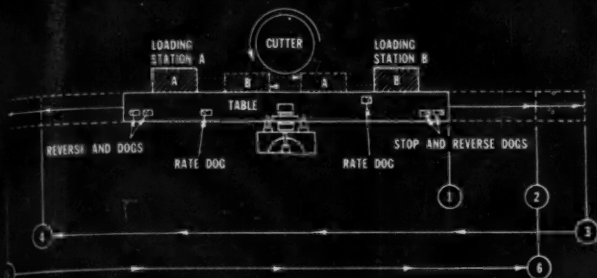
Talk about production! Here's picture-proof of reciprocal milling on a standard knee-type Kearney & Trecker 30 hp No. 3 CSM machine with Automatic Table Cycle and *Mono-Lever*

control. Using Automatic Table Cycle, machine turns out hundreds of these forged parts with operator merely loading and unloading workpieces. Actual savings 31%.

**Plain Facts Prove Why . . . THESE
TIME UP TO 31% - PAY**

HOW JOB IS DONE

USING AUTOMATIC TABLE CYCLE AND MONO-LEVER CONTROL



1. Operator loads (A) and engages Mono-Lever. Table advances in rapid traverse to point of cut on workpiece (A) at (2).
2. Feed dog changes rapid traverse to selected table feed for cut on (A). Operator loads at station (B).
3. Upon completion of cut stop and reverse dogs reverse table in rapid traverse to point of cut on workpiece (B).
4. Feed dog changes rapid traverse to selected table feed on (B). Operator unloads and reloads at Station (A).
5. Stop and reverse dogs reverse table in rapid traverse to point of cut on workpiece (A).
6. Cycle repeats from (2).

LOOK AT THE JOB at left—the diagram tells how it's done. Table feed screw with adjustable nut eliminates backlash, so climb and conventional cuts are taken with equal ease. Cycle pre-set to fit operator's required load and unload time.

HOW can you reduce floor to floor time on nearly all types of general purpose milling operations?"

Kearney & Trecker's research and development—always directed at getting greater production at lower costs—found a new answer to that question. It's Kearney & Trecker's new line of standard knee types with Automatic Table Cycle and Mono-Lever control.

They simplify hand control of the table to the simple movement of ONE LEVER—thereby substantially reducing idle cutter time and operator fatigue. They combine the all-around versatility and working range of knee-type designs with the automatic, high production feature of bed types.

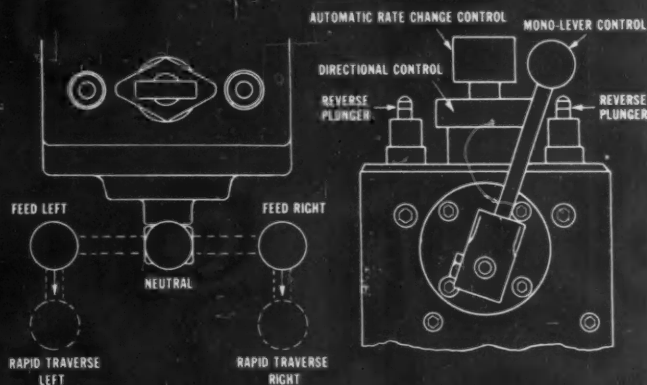
Of equal importance to you is the opportunity for proper machine selection. You neither over-buy nor under-buy, but you buy right when you choose from the 56 machines in this new Kearney & Trecker line. For some startling facts about these machines and their application to your milling work, consult a Kearney & Trecker Sales Representative today. He's been schooled in the "know-how" and he's at your service. For detailed information, contact him or write us direct. Ask for Catalog No. AC-10A. Kearney & Trecker Corp., 6784 W. National Ave., Milwaukee 14, Wis.



KEARNEY & TRECKER
MILWAUKEE
MACHINE TOOLS

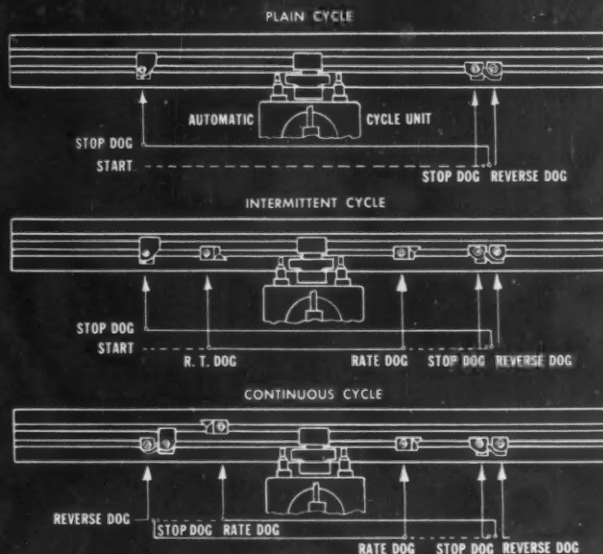
HOW IT WORKS

AUTOMATIC TABLE CYCLE and MONO-LEVER CONTROL UNIT



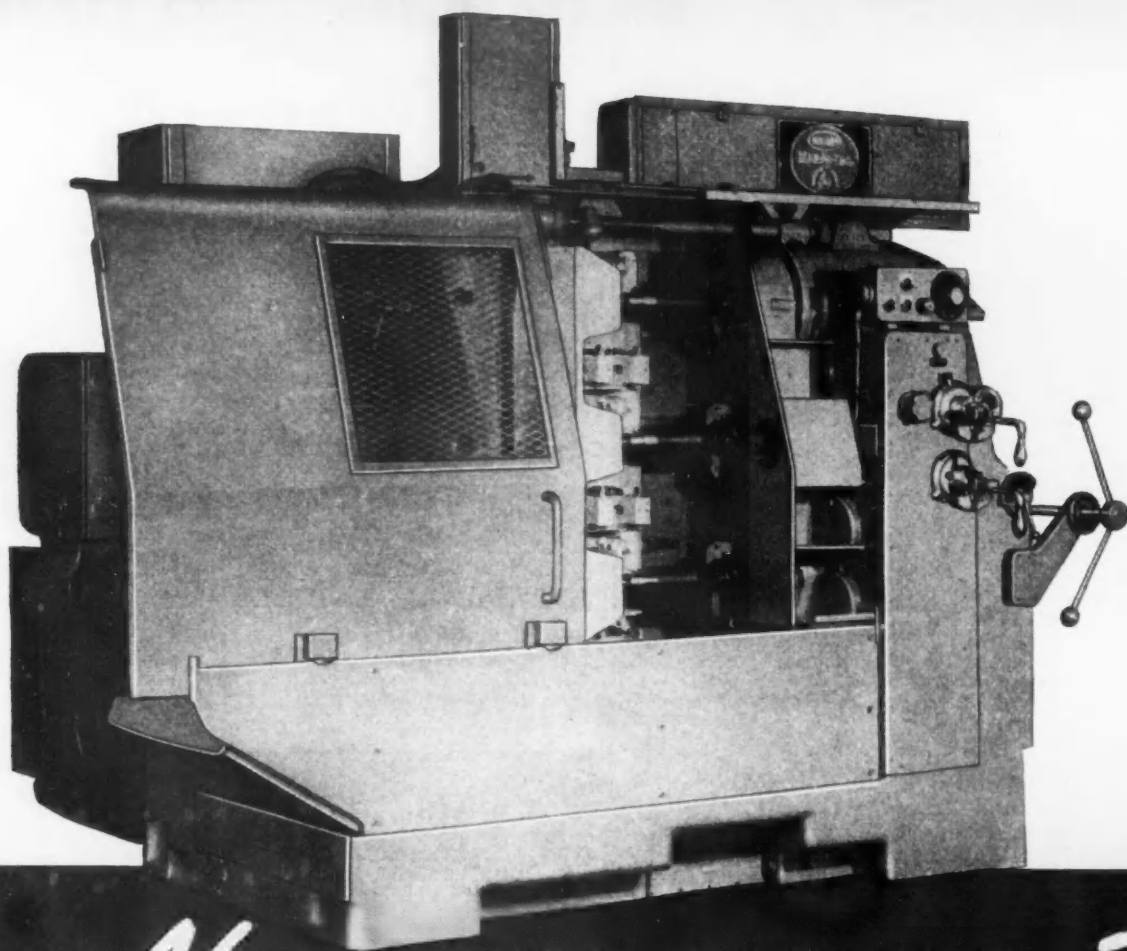
THINK OF IT! Now you can have all the advantages of this great cost-cutting feature plus the all-around versatility of general purpose, knee-type machines... faster, easier control for greater production with less operator fatigue.

TYPICAL CYCLES YOU CAN USE



THREE DIFFERENT TYPICAL CYCLES to accommodate various job setups. Using the completely automatic cycle feature effects savings of up to 31% for lots of 10 or more pieces. Cycle can be set for loading and unloading time—and can be reversed in feed or rapid traverse.

SE **MACHINES CUT CYCLE**
AY **THEIR WAY FASTER !**



Now... YOU CAN GET **3**
IN LESS TIME THAN IS OFTEN

*These 8 Production Reports
May Suggest Big Savings For YOU*

| Number | Part | Material | 3 Pcs. Floor to Floor Time | Time per Piece |
|--------|-------------------------|--------------------|--|--|
| 1 | Third motion shaft | Steel Forging | 2.21 min. | 44 sec. |
| 2 | Overdrive main shaft | SAE 4620 | 1.96 min. | 39 sec. |
| 3 | Crankshaft | Steel Casting | 2.25 min. | 45 sec. |
| 4 | Sector Shaft | SAE 5132 | .8 min. | 15 sec. |
| 5 | Counter Shaft | SAE 4320 | 1st chg. 1.78 min. 2nd chg. 1.63 min. | 36 sec.—1st chuck 32.6 sec.—2nd chuck |
| 6 | Inner axle Shaft | SAE 4140 | 1.62 min. | 32 sec. |
| 7 | Outer race Bell | SAE 4620 | 2.0 min. | 40 sec. |
| 8 | Rear axle Shaft | SAE 8630H Forge | 2.30 min. | 46 sec. |

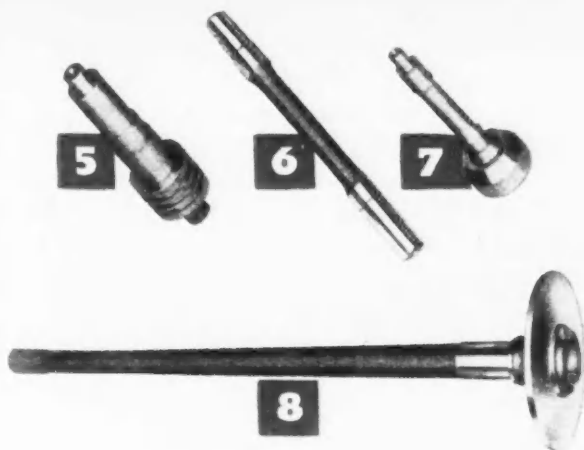


BULLARD CREATES NEW METHODS TO MAKE

Model 30H Man-Au-Trol Horizontal Lathe Produces 3 Identical Pieces per Cycle

Model 30H BULLARD Man-Au-Trol Horizontal Lathe triples production on between-center shaft turning work by machining 3 finished pieces per cycle with its 3 identically tooled spindles. Simplified tooling for rough and finished cuts also reduces tooling costs. Multiple-tool blocks are provided when needed for grooving, recessing, chamfering, angle-turning and other such operations.

**Finished Pieces
REQUIRED For 1**



MACHINES DO MORE

Reports are now coming in from owners of BULLARD Man-Au-Trol Horizontal Lathes proving that this machine's unique "3 for 1" method really pays off in lower production costs. See the accompanying chart for some actual figures.

Reasons for the high productivity of the BULLARD Model 30H Lathe come under three general headings: the "3 for 1" principle, operator convenience, and Man-Au-Trol versatility.

"THREE PIECES FOR ONE"

By turning out three finished pieces per cycle with its three identically tooled spindles, the BULLARD Model 30H perceptibly reduces the time per piece.

EASIER TO OPERATE!

This is a right-handed machine with headstock and all operating controls conveniently located at the operator's right. Convenient control of the hydraulically operated chucks facilitates loading and unloading. That's all the work he does when Man-Au-Trol is in 100% automatic operation. The rest of his job is merely supervisory.

AMAZINGLY VERSATILE!

This is an automatic *all-purpose* machine, thanks to Man-Au-Trol, *the automatic control that is as versatile as manual control*. It's quick and easy to change from one job to any other because it is not cam-operated. Instantly convertible from automatic to manual control at the turn of a single lever, it is practical for long or short runs.

WANT ALL THE FACTS?

When you study the specifications of the Model 30H BULLARD Man-Au-Trol Horizontal Lathe, you'll agree that no other horizontal lathe offers you such a combination of productivity, convenience, versatility and performance. Write today. THE BULLARD COMPANY, Bridgeport 2, Connecticut.





How sweet music might help you solve problems in steel

THE picture above shows the mechanism of an antique music box—a collector's item worth thousands of dollars. The finest of such music boxes were handmade by Swiss, German and Austrian craftsmen about 100 years ago. This box is one of many owned by George A. Bidden of Barrington, R. I., who like many people today makes a hobby of collecting these beautiful instruments. He has become expert in restoring them, in recapturing their virtually perfect tone.

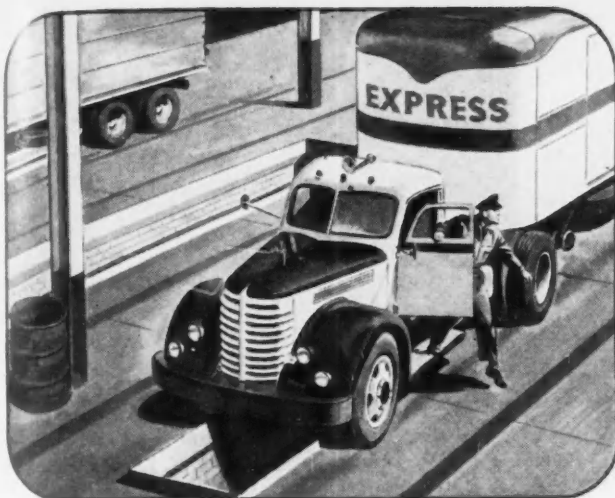
But Mr. Bidden encountered a problem. He could no longer get from Switzerland the out-of-the-ordinary flat steel needed to dampen the tones in the comb teeth. In desperation he turned to our Athenia Steel Division, described his requirements, and in short order got specially-processed steel, perfect for his needs.

This is a story of unusual application, but is typical of Athenia service in the development and production of steel. So if you are a user of special-purpose steel . . . if the solution to a problem in quality, behavior, uniformity, control or application would be "music to your ears", it might pay you to see what Athenia specialists can do about it.



DIVISIONS OF NATIONAL-STANDARD CO.

| | |
|--|---|
| ATHENIA STEEL, Clifton, N. J. | Flat, High Carbon, Cold Rolled Spring Steel |
| NATIONAL-STANDARD, Niles, Mich. | Tire Wire, Fabricated Braids and Tape |
| WAGNER LITHO MACHINERY, Jersey City, N. J., | Lithographing and Special Machinery |
| WORCESTER WIRE WORKS, Worcester, Mass. | Round Steel Wire, Small Sizes |



Your plant garage —



is a fire-danger spot —



**BEST
PROTECTED
BY
Kidde
PORTABLES**



When trucks are being serviced—or filled with gasoline—your plant garage could be the scene of a fire causing serious damage to the building—perhaps total destruction of your trucks! Don't give garage fires a chance to spread—keep *Kidde** Portable Extinguishers right at hand!

With a *Kidde* Portable, you can act fast against fires in flammable liquids—or electrical wiring on trucks. Carbon dioxide

(CO₂) cannot damage equipment or materials, or corrode metal parts. And it leaves no unsightly mess to clean up—not even moisture!

All *Kidde* Portables, from the 2½-pound size to the 25-pounder, have TRIGGER-FINGER CONTROL—the simplest way known to operate an extinguisher. Ask a *Kidde* representative for full details.

*Also known as "LUX"



The words "Kidde" and "Lux" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

Kidde

Walter Kidde & Company, Inc.

• **1249 Main St., Belleville 9, N. J.**

This is what we do.



Color photographs taken by Robert Yarnall Richie

melt...



roll...



cast...



forge...

We are manufacturers of steel. We make steel, process it and fabricate it into finished products.

Our plants are strategically located to take advantage of skilled labor and natural sources of supply. When the need arises we work together as one self-contained unit.

The combined skills of all Barium personnel and our combined facilities are brought to bear upon your problems when you buy Barium products.

Get acquainted with the Barium subsidiary which can best advise you on your problems and supply your needs ... or send your inquiry direct to 25 Broad Street, New York, and we will refer it to the Barium plant which can serve you best.

BARIUM STEEL CORPORATION

25 BROAD STREET, NEW YORK, N. Y.

BARIUM STEEL & FORGE, INC., Canton, Ohio
 BAYONNE BOLT CORP., Bayonne, N. J.
 CENTRAL IRON AND STEEL COMPANY, Harrisburg, Pa.
 CLYDE IRON WORKS, INC., Duluth, Minn.
 THE CUYAHOGA SPRING COMPANY, Cleveland, Ohio
 THE DETROIT STEEL CASTING COMPANY, Detroit, Mich.
 ERIE BOLT & NUT COMPANY, Erie, Pa.
 THE GEOMETRIC STAMPING COMPANY, Cleveland, Ohio
 GLOBE FORGE, INC., Syracuse, N. Y.
 KERMATH MANUFACTURING COMPANY, Detroit, Mich.
 KERMATH (CANADA) LTD., Toronto, Ontario, Canada
 PERMA-JACK CORP., Cleveland, Ohio
 PORCELAIN STEELS CORP., Cleveland, Ohio
 SHEFFIELD IRON & STEEL CO., Sheffield, Ala.
 WILEY MANUFACTURING COMPANY, Mountville, Pa.
 WILEY MANUFACTURING COMPANY, Port Deposit, Md.



stamp...

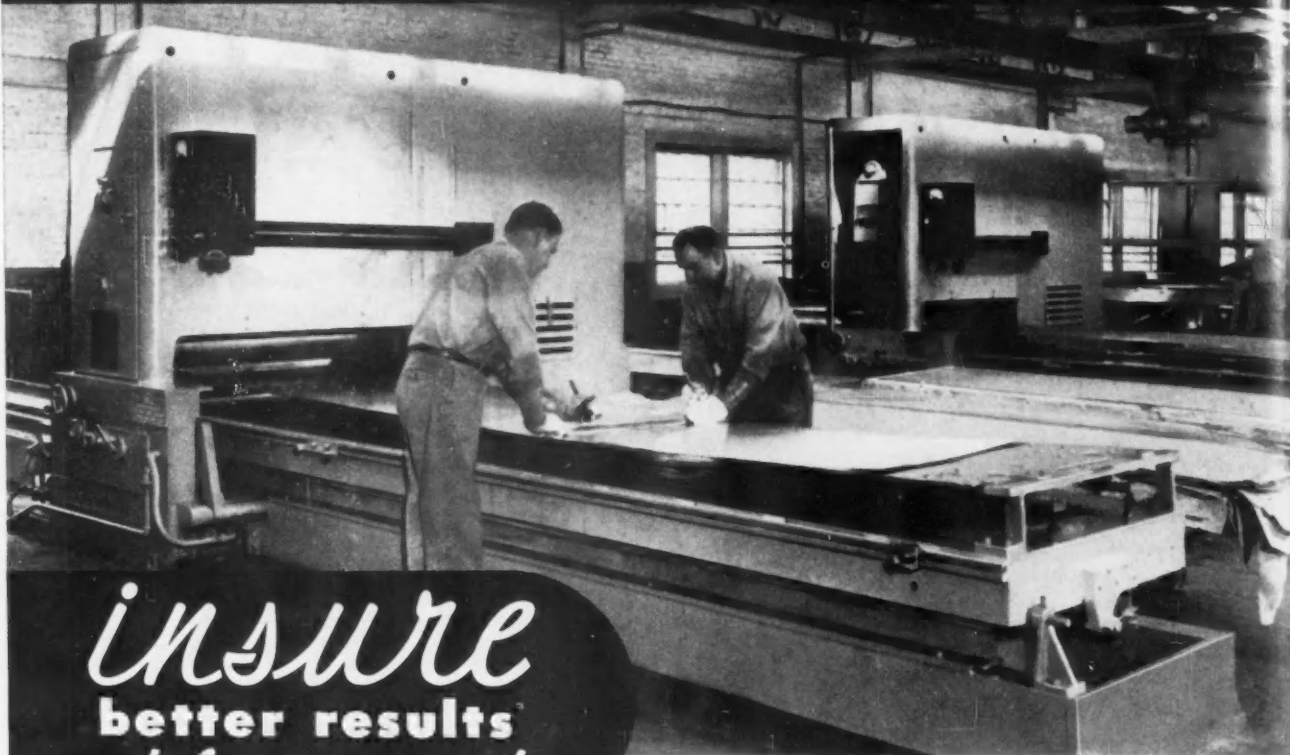


machine...



fabricate...

IMPROVED GRINDING & POLISHING MACHINES

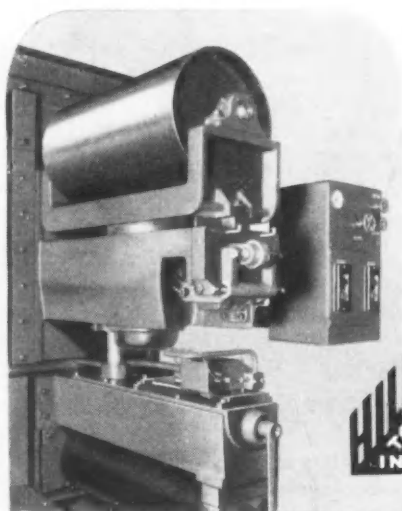


insure
better results
at lower cost

Grinding and polishing stainless steel on "HILL" 48" x 12' 2-Roll Vertical Abrasive Belt Hydraulic Table Sheet Machines

The "HILL" 2-Roll Vertical Head design covers basically an upper steel idler roll and a lower rubber covered contact or work roll (both dynamically balanced) over which the abrasive belt travels. Endless coated abrasive belts 10'6" long are used on all "HILL" 2-Roll Vertical Grinding and Polishing Machines. Research and experience has proven this short belt to be considerably more economical and practical than longer belts generally used. Time consumed in changing belts is drastically reduced, and the cost of the 10'6" belt is decidedly lower.

The "HILL" Sheet Grinder and Polisher has a rugged, all fabricated steel table, actuated by 100% hydraulic drive, providing instantly variable speeds up to 100 f.p.m. Table widths are 36", 48" and 60"; lengths range from 60" to 240".



A test run to your specifications with the new, improved "HILL" Sheet Grinding and Polishing Machine will convince you that older type machines are obsolete from the standpoint of economy and efficiency. Bulletin GP-3 supplies additional details. When writing for information, please indicate size and specifications of stock to be finished.

THE HILL ACME COMPANY

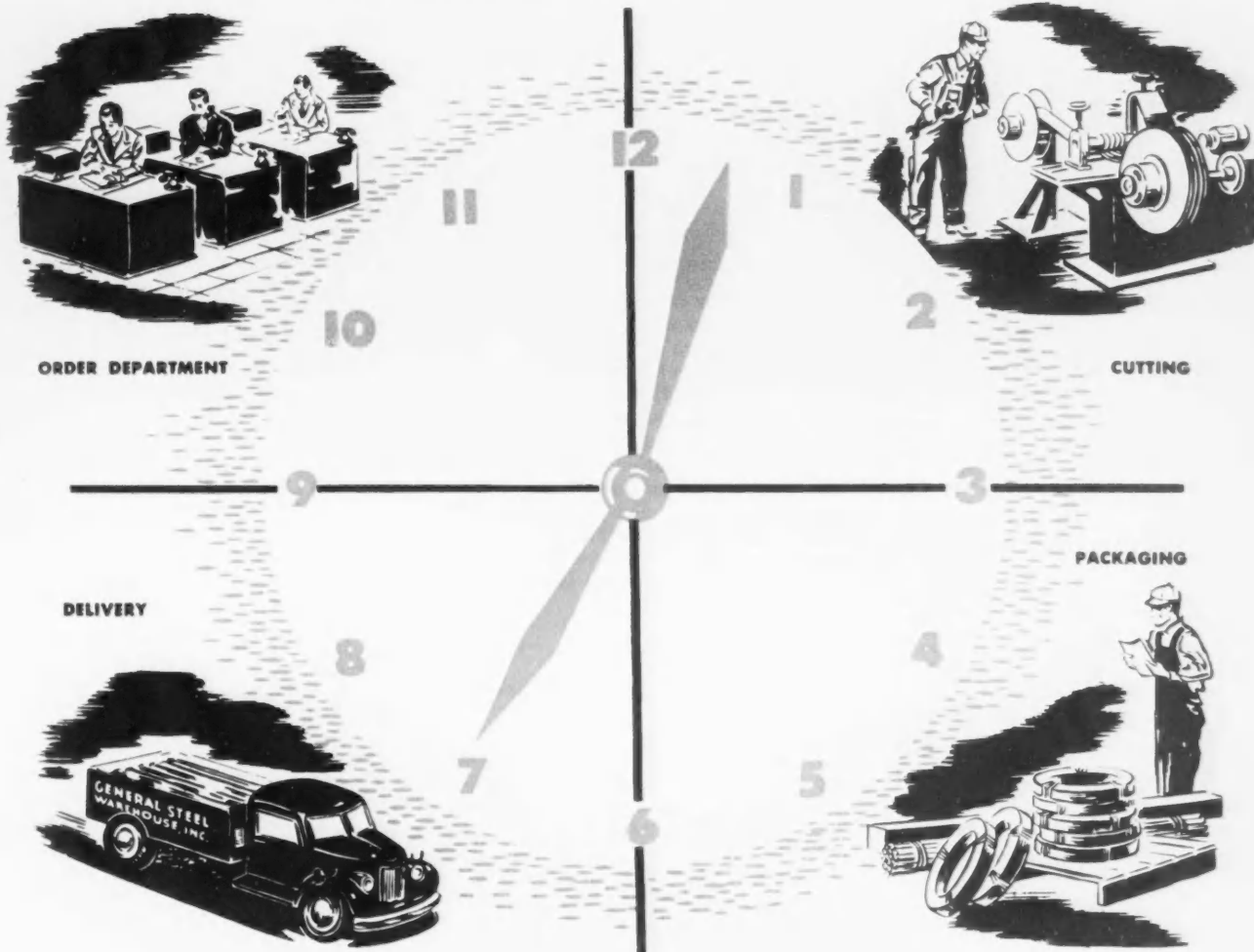
6400 BREAKWATER AVENUE • CLEVELAND 2, OHIO

"HILL" GRINDING AND POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • ALSO MANUFACTURERS OF "ACME" FORGING THREADING • TAPPING MACHINES • "CANTON" ALLIGATOR SHEARS • PORTABLE FLOOR CRANES • "CLEVELAND" KNIVES • SHEAR BLADES

JUST ANOTHER DAY

With Gensco Specialized Steel Service

Every Gensco working day is one of many activities in bringing you the attention and service so important in steel purchases. Around the clock—from receipt of your phone call or order—until the steel is ready for your machines, Gensco Specialized Steel Service is working for you.



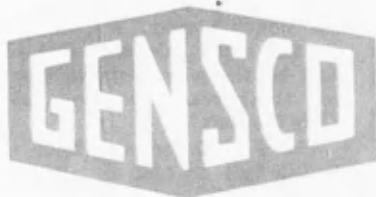
WE'RE AS CLOSE AS YOUR TELEPHONE WHEN



YOU CALL

*BE*lmont 5-4266

COLD FINISHED BARS • SHAFTING • TEMPERED AND ANNEALED SPRING STEEL • DRILL ROD • SHIM STEEL • COLD ROLLED STRIP STEEL • COILS AND STRAIGHT LENGTHS • ROUND EDGED STRIP STEEL • FEELER GAUGE • ROUND WIRES • STEEL BALLS



GENERAL STEEL WAREHOUSE CO., INC. • 1830 N. Kostner Ave., Chicago 39, Ill.

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* ST. LOUIS Wydown 1368
* NEW YORK Vanderbilt 6-2750

* MINNEAPOLIS Bridgeport 1119
* GRAND RAPIDS Grand Rapids 3-6328

METAL FABRICATOR CUTS COSTS 67 PER CENT —CAN YOU?



G.E.'s money-saving pack of facts, manual — movie — review booklets.

Get these facts to your key men and see how much you can save

- WITH ARC WELDING, a fabricator cut costs on one large metal part by 67%.
- WITH ARC WELDING, a truck builder slashed production on dump trailer bodies to an unprecedented 15 hours.

In your plant, too, savings like these in time and money are possible—when your key personnel know the up-to-the-minute facts on arc welding—know how to put them to work on your problems. And it's so easy to get the facts to them now—at no cost to you!

FREE to business management

Examine the General Electric *Arc Welding Manual* free of charge. It covers every phase of arc welding from a list of welding services for the user to specific examples of production feats in plants like yours. It provides up-to-date data about available equipment, power supply requirements, design and safety measures. It's written by experts, without sales bias, in a language your men can easily understand. Look through it. Satisfy yourself that it will pay off in your plant, then—

Get a FREE showing of the film

Your key personnel will enjoy learning the newest facts on arc welding in this modern, absorbing, visual way. Here's a thirty-minute General Electric sound film in full color that wallows across its ideas—actually shows you precisely how arc welding is building better products cheaper in plants like yours. It's prepared by arc-welding specialists in terms that are grasped readily. Show it to your key men and—

Get FREE review booklets

They're ideal for individual study and review. Have as many as you like, but—

ACT NOW! Don't delay. Remember—today's arc welding offers you unprecedented opportunities to cut costs, improve quality, lick difficult production problems. So start the ball rolling by filling in the coupon below, and we'll rush you a copy of the G-E *Arc Welding Manual*. Do it now!

FREE
TO BUSINESS
MANAGEMENT

Attach
to your
business
letterhead

General Electric Co.
Section N684-9
Schenectady 5, N. Y.

Please mail me a sample copy of the G-E *Arc Welding Manual* without cost or obligation, with details on how I can arrange for a FREE SHOWING of the film. (Extra copies at regular manual price—\$1.25.)

Name _____ Title _____
Company _____
Street _____
City _____

GENERAL ELECTRIC

Fatigue Cracks

BY C. T. POST

That Man Again

• • Had anyone known about it, the main office Christmas party of the American Bankers Association would have been considerably dampened. The stunning Christmas tree around which the bankers celebrated was a product of the Roosevelt tree farm straight from Hyde Park. When the truth finally leaked out, general comment was that the tree seemed to lose its needles pretty fast. Probably it wasn't used to the office atmosphere.

Christmas Present

• • The circulation department of your favorite family journal hasn't made much noise about it, but this issue is the 53rd of 1948. No other weekly publication, to our knowledge, has bestowed such a handsome bonus upon its readers. No other publication, we're sure, loves its readers so deeply. Don't count on a similar beneficence for a few more years, though. Times are getting tough, and besides it's not every year that has 53 Thursdays.

Happy New Year

• • Just at the stroke of midnight we are tipped off by Reader Keith Misegades as to the ideal guest for your New Year's Eve party, a man by the name of Wu Pe. Wu is celebrating issuance of Patent No. 2,456,080 on an ignition plug he invented. Sounds like a natural for setting off one of those noisy smoke bombs under the hood, just as the bride and groom leave on their honeymoon.

So?

• • And to the list of surveys we're skeptical about: An Advertising Research Foundation study of readership. It sort of rocks us to learn that men like to look at pictures of men, women like to look at pictures of women. Sounds like our contemporary, *Esquire*, may not sell many calendars this year. And by the way, Borden, who do you think reads those ads about Elsie the Cow?

The Foundation also finds that women like to look at advertisements showing pictures of animals and babies, but adds that they should be used only if pertinent to the subject of the ad. Back you go, all you watery-eyed cocker spaniels, to the pages of *Dog Supply*

Topics. You can stay, Junior, but you'll have to quit giving advice to daddy on buying a new car.

Thanks

• • Today we're sending thanks to all our friends for the gifts they didn't send. Topping the list is a combination "knife, key bottle-opener and corkscrew mounted with 14 kt. gold" which Tiffany advertised in the newspapers for \$86, including tax. Tiffany, we think, should stick to more practical items like the women's—pardon, ladies—14 kt. gold lipstick case set with diamonds. Only \$285.

Geewhilkens, we saved a lot of money this Christmas!

Grapes of Wrath

• • By some circuitous route the December issue of *Council Compass*, published by the Council of Western Electric Technical Employees, has come to rest on our desk. We don't mean to dwell on the various difficulties that beset the Council in its relations with management. Far more intriguing is a reference to F. W. Schmidt, Western Electric's labor relations representative, as "a graduate engineer of 1913 vintage."

H. L. Mencken would step on us if we attempted to be prissy about this use of the word *vintage*, but in this case it seems unique. No implication of bibulousness is attributed to Mr. Schmidt by the *Compass*, which goes on to describe him as "suave, poised and affable." But vintage is something that you tread out. And if the Council is squeezing its grapes of wrath to prove that the technical employees are downtrodden, it certainly shouldn't use a word like that to describe a management representative.

There's the spark of a new slant on the engineering profession here though. Next time Junior asks us "Where do engineers come from, daddy?" we'll simply refer him to the Council and say, "They tread them out."

Aptronyms

• • Charles C. Finn, the Seattle apronymist, gulped when he saw the headline announcing the latest acquisition of the Milwaukee baseball team: "Brewers Buy Pitcher." No more guzzling from the tap.

A waiter of his acquaintance, Kenneth Leak, should have been a plumber. We crossed that off the "name fits" list until Finn explained that Leak was named when he was a tiny, little baby.

Dear Editor:

NODULAR IRON

Sir:

In Newsfront of the Oct. 21 issue, the statement is made that "recent research has suggested that magnesium may be superior to cerium for developing nodular graphite structures in cast iron. Best alloy to date appears to be a magnesium-copper with more than 50 pct copper," etc. Could you tell us the origin of this statement?

E. SPIRE
Chief Metallurgist, Research Dept.
L'Air Liquide Society
Montreal

● The item was based on remarks from a paper presented by C. K. Donoho, chief metallurgist, American Cast Iron Pipe Co., Birmingham, at the American Foundrymen's Society regional conference at Lansing, Mich., on Oct. 1.—Ed.

MINNESOTA ORES

Sir:

The writer is connected with an estate and has been called upon to determine whether the estate should accept an offer, made by a mining company, to lease property owned by the estate for iron mining operations. Being unfamiliar with this type of work, I am communicating with you in the hope that you will refer me to sources of information.

Specifically, could you tell me where to find the prices paid for iron ore f.o.b. Cuyuna, Minn., during the past 10 years? And could you refer me to a source where I might obtain information as to whether other ores besides iron ore exist in Crow Wing County, Minn.?

CHARLES K. ELLIOTT
Anderson, Davis & Platte, Inc.
New York

● Price f.o.b. upper lake ports is a matter for individual negotiation. However, a standard price, delivered lower lake ports, has been regularly quoted in IRON AGE and tear sheets showing this price over the past years have been sent you. As to other ores in Crow Wing County, Prof. E. W. Davis, Univ. of Minnesota, Minneapolis, is thoroughly familiar with ore resources in that region and would be able to direct you to such reports as might be pertinent.—Ed.

HEAT TREATING

Sir:

We are engaged in developing a heat treating process for some of our products and are anxious to have at hand as much information as possible relative to the heat treatment of steel. Would it be practical for you to supply us with a listing of the articles you have published over the past few

NOW your alloy castings
will be better because
Firth-Vickers and Lebanon
have joined forces



Corrosion and heat-resistant alloy steel castings of certain types acquire better characteristics when made by the Centri-die process in permanent molds. This method was developed by Firth-Vickers of Sheffield, England, over a long period of experimentation. It is largely responsible for the superior qualities of the Rolls-Royce, De Havilland, Bristol and other British airplane jet engines. Since the war it has been widely applied to castings for corrosion and heat-resistant service.

The agreement between Lebanon and Firth-Vickers makes available to us the best experience, methods and foundry practices known in England and assures Lebanon's customers a continuance of our traditional high-quality standards.

If your equipment is subjected to high temperatures or corrosive conditions, you should know about the new Lebanon castings made by the Centri-die process in permanent molds.

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Here is a clear explanation of the practical advantages to you of the Firth-Vickers Centri-die method of making alloy castings centrifugally in permanent molds. Of interest to executives and engineers who want to keep abreast of new manufacturing and production methods. Write for Bulletin F.

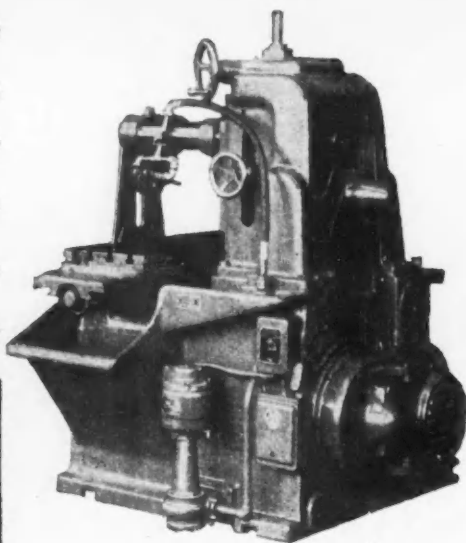
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years on this subject? If the listing can be made, would it be possible to purchase back copies of the issues from you?

EDWIN W. HURD

Hurd Lock & Mfg. Co.
Detroit

● We are sending semi-annual indexes covering the issues from July 1945 through June 1948. If you will select the heat treating articles which sound useful to you, we will do our best to supply tear sheet copies. Where tear sheets aren't available, it might be possible to obtain complete issues from a dealer in back issues or to have photo-stats made.—Ed.

NODULAR CAST IRON

Sir:

We have read with interest the bibliography on the "Properties of Nodular Cast Iron," Nov. 25 issue, p. 83, relative to the development of nodular graphite structures in cast iron without heat treatment. This would indicate that the original idea and first process for the manufacture of nodular graphite in gray cast iron resulted from the investigations of the British Cast Iron Research Assn. on certain additions to cause a degree of carbide stabilizing effect in reasonably soft gray cast iron, as a single treatment; or by means of a double treatment, cerium addition and inoculating addition. (Morrogh used either 80 pct silicon, ferrosilicon, SMZ alloy, or calcium silicide.)

Actually, the first discovery of the production of nodular graphite structures in gray cast iron dates back to before the war, when the Meehanite Metal Corp. was conducting various experiments with magnesium, cerium, selenium, tellurium and antimony. Out of this work resulted patent No. 2,364,922, promulgating the use of tellurium as carbide stabilizer with calcium silicide as graphitizer, with or without the addition of such metals as nickel, molybdenum and copper. This discovery covers also the production of a nodular graphitic structure in a matrix of either ferrite or pearlite, according to the properties desired in the finished casting.

Page 2 of the patent mentioned states:—"The tellurium addition is to be adjusted in accordance with the softness of the gray iron that is started with, and any gray cast iron for the purposes of the present invention may be defined as a cast iron in which the combined carbon does not exceed 0.8 pct. Without limiting the invention to an exact theory, it appears that the addition of tellurium not only influences the combined carbon, but also changes the graphite, reduces its length and even to nodular form, and thus improves the grain structure and the mechanical properties. When starting with a gray iron which normally will not give a pearlite

itic structure without a tellurium addition, the incorporation of tellurium in such iron produces a pearlitic structure, provided the amount is controlled, as hereinabove indicated. The present invention seeks to control the tellurium addition to normally gray cast iron containing free ferrite to produce an all-pearlitic iron, and to take up the effect of any tellurium added in excess of such all-pearlitic structure by the use of an alkaline-earth silicide or graphitizing substance."

Oliver Smalley
President

Meehanite Metal Corp.
New Rochelle, N. Y.

● The bibliography was not intended to be a complete listing; rather a listing of the more recent discussions of the subject. Reader Smalley's comments, however, are of particular interest in establishing some of the background on this development.—Ed.

STEEL SHORTAGE—BAH!

Sir:

Your editorial advices on the steel shortage are becoming a pain in the eye. I quote, "Steel demand is strong . . . it is wide . . . shows no sign of faltering . . . hitting every steel product . . . more steel demand, etc., etc." For the past two years we have been trying to sell 1000 lb of stainless. We've advertised it in the newspapers, sent out 1000 cards to screw machine shops and have made solicitations by letter, by telephone and in person. To date we have not been offered even half of the quoted price. It is new stainless steel; 3/16 in. round, 12-ft long straight rod, type 416. Where is our rush of buyers?

J. J. AMES

Ames & Co.
Cleveland

● Stainless represents less than 1 pct of steel tonnages and general statements on market conditions do not always apply to it. Since it is a premium grade in price, the demand for stainless, along with some of the alloy grades, has not been as tight as for regular carbon steel. Still you shouldn't have had that much trouble selling it.—Ed.

ALUMINUM ROOFING MAKERS

Sir:

Will you kindly send us a list of the manufacturers of aluminum roofing and siding.

EDUARDO GRULLON

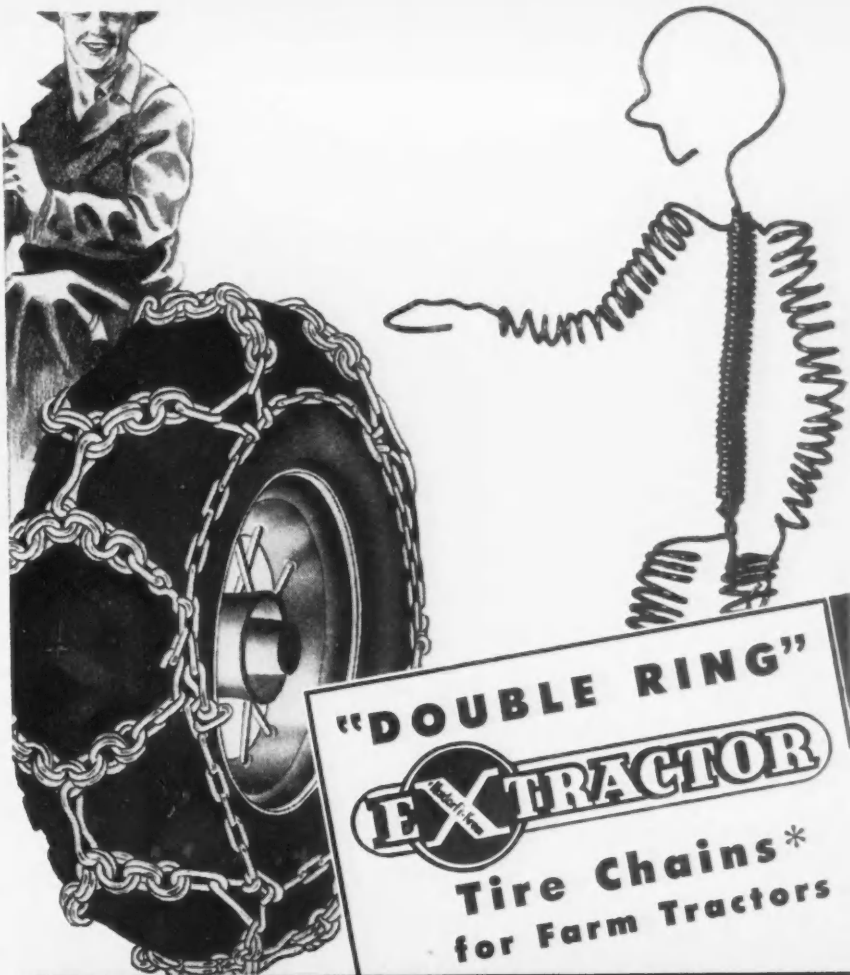
Joseph Danon Co.
New York

● A list is in the mail.—Ed.

FOUNDRY TRAINING

Sir:

We would like to learn the names and addresses of trade schools or colleges offering courses in foundry practice. We are especially inter-



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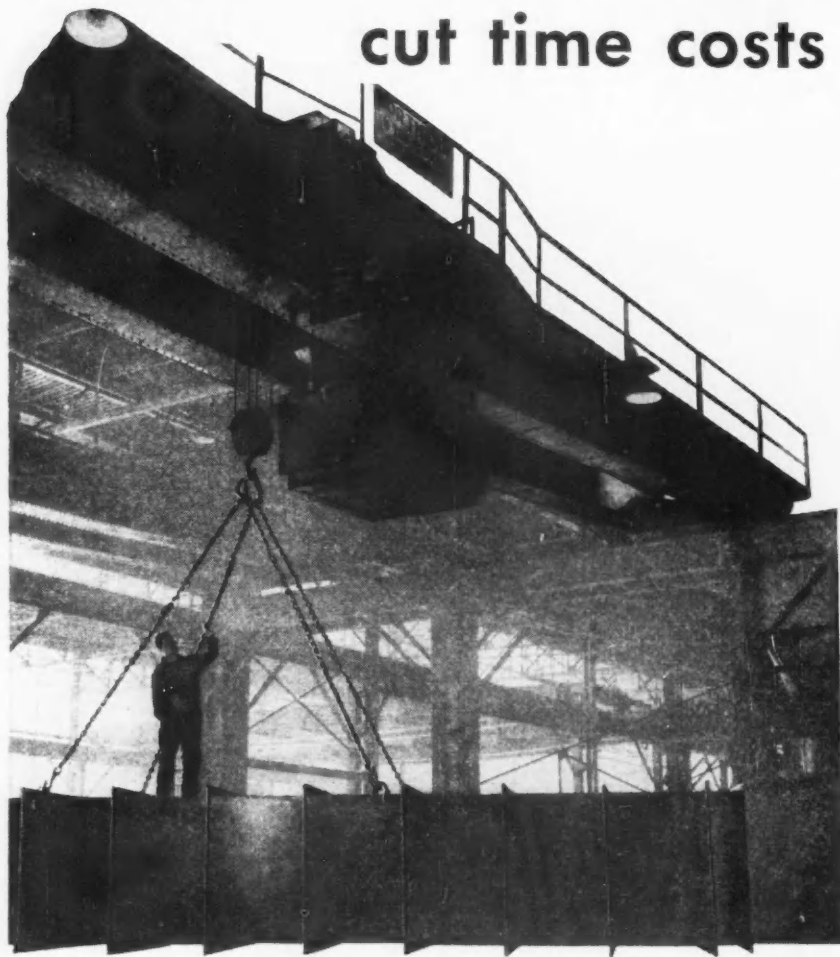
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ested in extension courses on the subject.

STANLEY P. ELLIOTT
Asst. General Supt. & Personnel Director

Stanley G. Flagg & Co., Inc.
Stow, Pa.

● Either the American Foundrymen's Assn., Chicago, or the Foundry Education Foundation, Cleveland, can send you an up-to-date list.—Ed.

PLATING RANGE TEST

Sir:

We would like a copy of the article "Rapid Plating Range Test" appearing in the Dec. 4, 1947 issue.

PAUL BRODERICK
Asst. Purchasing Agent

National Forge & Ordnance Co.
Irvine, Pa.

HIGH TEMPERATURE SHEETS

Sir:

Please send tear sheets of the articles "Sheet Metals for High Temperature Service," Sept. 23 issue, and "Single Slag Basic Electric Furnace Practice," Sept. 30 issue.

M. J. R. MORRIS
Director of Research

Republic Steel Corp.
Cleveland

PUNCH PRESS STRAINS

Sir:

In the Jan. 15 issue an article entitled "Strain Gage Analysis of Mechanical Punch Presses" was of deep interest to us. We would appreciate having a copy for our files.

J. T. HARRINGTON

E. W. Bliss Co.
Detroit

METAL OXIDE FILMS

Sir:

I would appreciate receiving a tear sheet of the article "Metal Oxide Films at Elevated Temperatures" which appeared in the Aug. 12 issue.

R. N. WILLIAMS
Metallurgist

Republic Steel Corp., Steel & Tubes Div.
Cleveland

COLOR METALLOGRAPHY

Sir:

Please furnish four reprints of "Color Metallography" from the Oct. 14 issue.

C. C. COPENHAVER
Purchasing Agent

Eastern Stainless Steel Corp.
Baltimore

LUMP CHROMIUM

Sir:

Can you give us the names of firms supplying chromium metal in lump form:

MYRON SIGLER

Myron's Dental Laboratory
Kansas City, Kansas

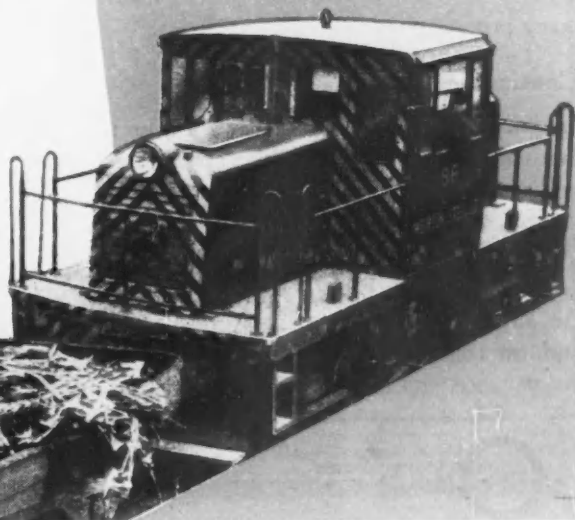
● The name of one source has been sent. If they are unable to supply you, they should be able to put you in touch with some one who can.—Ed.

Goodbye



"Horse-and-Buggy" Switching

"Going back to steamers would be like going back to horses and buggies," says Ben Costello, Superintendent of Transportation, Weirton Steel Co., Weirton, W. Va. "These G-E 50-ton diesel-electric switchers are 30 to 35% more efficient than the steam locomotives they replaced."



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High-efficiency switching at Weirton is due to several reasons. The five peppy 50-tonners have an average availability of over 97 per cent, while the coal-burning steam locomotives they replaced were available for service 60 per cent of the time. Each diesel-electric is out of service only 20 minutes every three days for refueling, each steamer required 90 minutes refueling time every eight hours.

Working hours are long—24 hours a day, seven days a week; the loads are heavy—up to 573,000 lbs; but the husky G-E locomotives are brim full of get-up-

and-go. They have the power and the pull to get the job done.

Five Standard Sizes

If you're using old steam or gasoline locomotives in your switching operations, you can expect to save thousands of dollars a year through slashed fuel and maintenance costs. G-E has five standard locomotive sizes, any one of which will probably pay for itself in three or four years. Have your nearest G-E representative survey your requirements, estimate your savings in advance. There's no obligation. Apparatus Department, General Electric Co., Schenectady, N. Y.

LOW FUEL COSTS

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120-41

Steel Mill Boosts Quality and Output With Help of Micromax Pyrometers

How can a steel mill engineer invest his Company's thousands of pyrometer dollars, so as to get the greatest dividends from the millions invested in manufacturing equipment?

And how can he surely make his control systems help to the utmost in holding quality, cutting costs and raising output?

Following are some of the answers, taken from a mill which turns out a wide variety of products and where the right temperature control by means of Micromax instruments has proved its worth in many processes.

Continuous Tinning (See Fig. 1)

Uniform temperature in the tin pot helps to maintain uniform rate of deposit, minimum dross formation and maximum production.

Hot Dip Galvanizing (Fig. 2)

Here Micromax Electric Control throttles fuel to the burners. Accurate temperature control means uniform coating, lower consumption of zinc, less maintenance, and less "down time" for dressing.

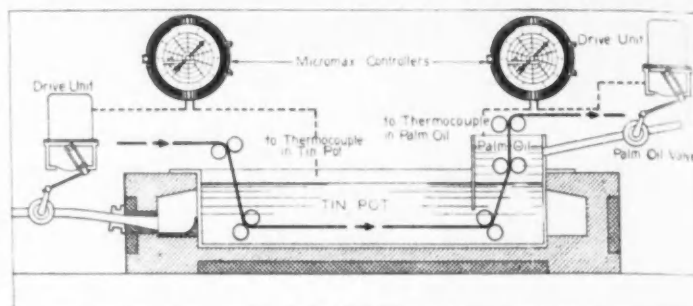


Figure 1. Continuous hot-dip tin pot.

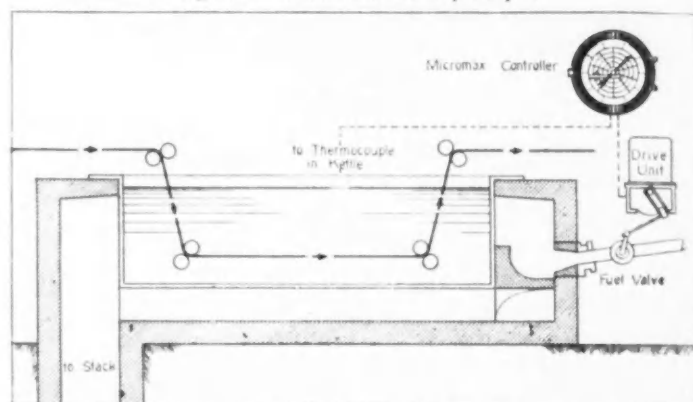


Figure 2. Galvanizing kettle, on continuous sheet line.

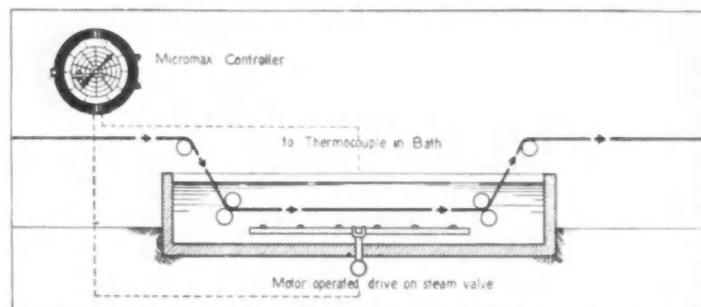


Figure 3. Steam-heated pickling baths.

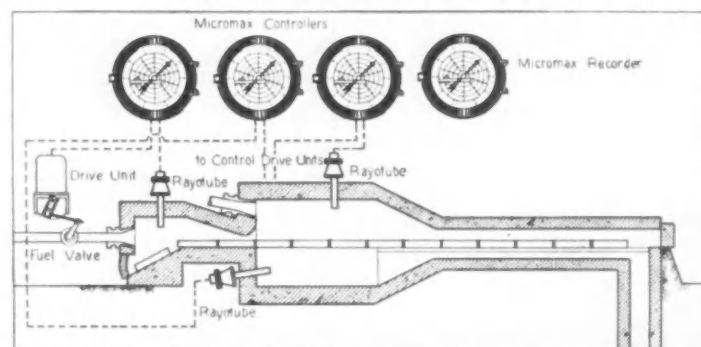


Figure 4. Slab heating furnace. A fourth Rayotube near the one shown in the lower zone detects slab temperature and reports it to the Pyrometer at top right.

Continuous Pickling Baths (Fig. 3)

Here the ability of Micromax to stay on the job continuously, and with low maintenance, helps to keep the process operating at top efficiency a maximum percentage of the time.

Slab Heating Furnace (Fig. 4)

This illustrates the application of Micromax Rayotube Pyrometers to a complex temperature control problem.

Complete temperature control helps the furnace to perform efficiently its functions of bringing the slabs back to rolling temperature, holding them at temperature until the mill is ready to receive them, and finally delivering the slabs at the right time properly conditioned for efficient rolling.

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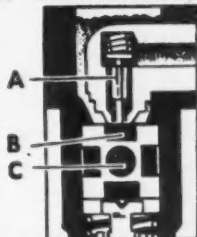
22—THE IRON AGE, December 30, 1948



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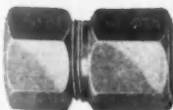
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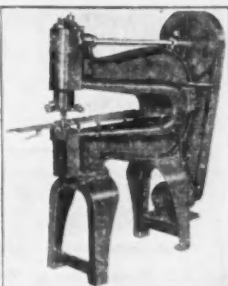
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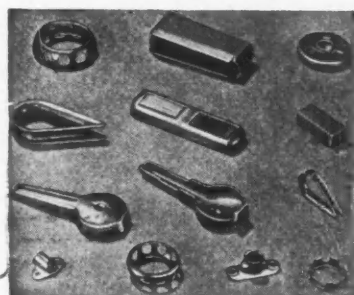
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AVAILABLE IN SIZES FOR
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Tool Steel O. H. Specialties

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If it's RIVETED you KNOW it's safe

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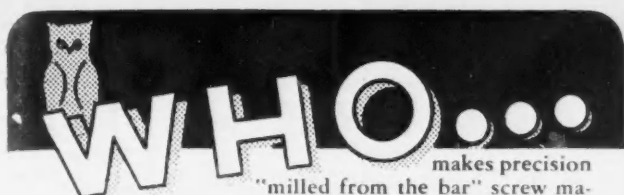


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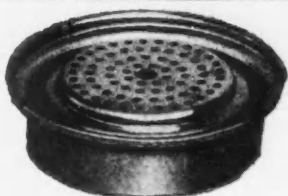


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- Bulletins available: General Purpose Die Heads, Insert Chaser Die Head, Threading Machines.



See our
Adv. on
page 221
Nov. 4
Iron Age

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25 Years' Experience in
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Special Carbon—Alloys

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AIR COMPRESSOR

210 cu. ft. Schramm Model 210 4 1/2" x 4 1/2" 6-Cylinder.
V-Belt Pulley Drive including 50 HP AC Motor.
100# Press.
150 cu. ft. Worthington 2-Stage V-Belt Drive With
3 H.P. G.E. Motor 125# Pressure
315 cu. ft. Model BXI LeRoi Portable Air Compressor
With 125 H.P. Gasoline Engine
1300 cu. ft. Ingersoll-Rand 2-stage, Motor Dr. With
212 H.P. G.E. Synchronous Motor

ANGLE BENDING ROLL

4x1 1/2" BERTSCH Angle Bending Roll, M.D.

BENDING ROLLS

10" Kling Pyramid Type Bending Roll, Motor Dr.
Capacity 1/2" Mild Steel
12" Hillis & Jones Pyramid Type Bending Roll, Ca-
pacity 1 1/2" x 1/2" or 10" x 1/2" Belt Driven
14" Bertsch Initial Type Bending Roll, Rolls 2 1/2"
Diameter, Belt Driven

BRAKE—PRESS TYPE

12" x 3/16" All Steel Press Brake, Motor Driven

BUILDING

76' x 356' Steel Building—New, never erected

CRANES—GANTRY

10 ton Milwaukee 33' Span 440/5/60 AC
15 ton Harnischfeger 27' Span 230 Volt DC

CRANES—OVERHEAD ELECTRIC TRAVELING

| | |
|---------------------|------------------------|
| 2 ton Shepard-Niles | 28' Span 550/3/60 AC |
| 2 ton Shepard-Niles | 36' Span 550/3/60 AC |
| 3 ton Shepard-Niles | 34' Span 550/3/60 AC |
| 3 ton P & H | 37'6" Span 440/3/60 AC |
| 5 ton Shepard-Niles | 27'8" Span 230 Volt DC |
| 5 ton Wright | 47' Span 440/3/60 AC |
| 5 ton Shepard-Niles | 40' Span 230 Volt DC |
| 5 ton Wright | 47' Span 440/3/60 AC |
| 5 ton Northern | 60' Span 230/440 AC |
| 6 ton P & H | 60' Span 440 Volt AC |
| 10 ton Wright | 22'4" Span 230 Volt DC |
| 10 ton Morgan | 47'8" Span 230 Volt DC |
| 20 ton P & H | 50' Span 220/3/60 AC |

200 ton ALLIANCE Overhead Electric
Traveling Crane 100' Span
25 ton Auxiliary Hoist
Five 230 Volt DC Motors

3 Ton Shaw Crane 50' Span
Three Motors 440/3/60 A.C.
30 ton Shaw Crane 55' Span
With 5 Ton Auxiliary
Four Motors 440/3/60 A.C.

DIEING MACHINES

25 ton Henry & Wright Dieing Machine Double Roll
Feed, Scrap Cutter 2" Stroke
75 ton Henry & Wright Dieing Machine Double Roll
Feed, 6" Stroke, Motor Driven

DRAW BENCHES

50,000# Aetna Standard Single Chain Draw Bench
50' Draw, Complete with hydraulic system and
electrical equipment
50,000# Aetna Standard Double Chain Draw Bench
30' Draw, Both Complete with Elec. Equipment

FORGING MACHINES

1 1/2" Pawtucket Bolt Forging Machine
3", 3 1/2", 4" Ajax
3", 4", 5", 6", 7 1/2" National
4" Acme Model XN

FURNACES

1 1/2 ton Moore Type "Q" Lecomelt Furnace Com-
plete with Transformer Equipment
2 ton Heroult Nose Tilt Type Melting Furnace
3 ton Heroult Rocker Tilt Type Melting Furnace
6 ton Moore Type OT Lecomelt Furnace
500# Electric Furnace Co. Tilting Type Rotary Gas
Furnace, Complete with Accessories

GEAR HOBBING MACHINES

No. 5B Sykes Gear Generator, Motor Driven, Will cut
a gear from 3" to 61" dia. by 48" wide on spur
and 21" on Herringbone, New 1945
No. 120-H Gould & Eberhardt Universal Gear Hobbing
Machine, Capacity Spur Gears up to 144" Dia.,
Helical Gears up to 120" Dia. Complete with
Electrical Equipment

GEAR REDUCERS

600 H.P. Westinghouse Reductor Unit Ratio 3:76-1
500 H.P. Mesta Double Reduction Ratio 11:1
600 H.P. Falk Single Herringbone Gear Reducer,
366/40 RPM

HAMMERS—BOARD DROP

1000# Billings & Spencer Model D
2000#, 4000# Chambersburg Model F
2500# Erie

HAMMERS—STEAM DROP

1000 lb. Chambersburg and Erie
1500# Erie
2000# Erie

HAMMERS—STEAM FORGING

800# Lane Single Frame
1000, 1250, 1500, 1600, 4000# Chambersburg
800, 900, 1000, 1250, 2500, 4500# Niles-Bement-Pond
1100, 1500, 1600# Erie Single Frame
20,000# Arch Type
8000# Morgan

HAMMERS—MISCELLANEOUS

1000# Chambersburg Pneumatic Motor Driven For-
ging Hammer, Complete with Motor
48" x 48" Chambersburg CecoStamp Hammer
48" x 36" Chambersburg CecoStamp Hammer
30" x 24" Chambersburg CecoStamp Hammer

LOCOMOTIVE—GASOLINE

35 ton Plymouth Model ML-8 Type 0-4-0 Gasoline
Locomotive, Standard Gauge New 1943

MILLING MACHINES—PLANNER TYPE

Ingersoll slab Milling Machine, 36" wide x 30"
height between housings, Table 30" x 20"
Ingersoll Slab Milling Machine, 42" wide x 30"
height between housings, Table 48" x 20"

NIBBLER

No. 10-B Gray Turret Head Metal Nibbler Motor
Driven, 36" Throat, Capacity mild steel 9/16".
Complete with Circle Cutting Attachment

PLANERS

36"x36"x18" Cincinnati Hypro Planer, Motor Dr.
36"x30"x10" Cincinnati Planer, Motor Driven
32"x35"x10" Niles Tool Works Planer, Motor Dr.
84"x84"x40" Planer, Two Rail & 2 Side Heads
120"x120"x20" Planer, Two Rail & 2 Side Heads

PLANNER—OPEN SIDE

36"x36"x18" Detrick & Harvey, Belt Driven

POLISHING MACHINE

No. 101 Production Machine Co. Polishing Machines
(3 in tandem), Complete with Centerless Belt Feed
& Wheel Truing Unit. Complete with Elec. Equip.
& Accessories

PRESSES—HYDRAULIC

150 ton HPM Hydraulic Press, 48" Stroke 30" x 30"
Platen
300 ton HPM Hydraulic Press, Complete with Pump
& Motor, Bed Area 30" x 36", Stroke 18", Day-
light 24"
600 ton Hydraulic Extrusion Press, 25 1/2" Stroke, 29"
x 26" Platen Size
700 Ton Robertson Hydraulic Extrusion Press, Com-
plete with Pump & Motor
750 ton Lake Erie Double Acting Hydraulic Press,
Platen 146" x 81 1/2", Stroke 46"
1000 ton Chambersburg 4-Column, Hydraulic Press,
18" Stroke, 48" x 22" Between Columns
2000 ton Wood Hydraulic Press, 9" Stroke, 24" x
35" Bed Area
4000 ton Stump Hydraulic Forging Press, 123" x 64"
Between Columns, Single Stroke 7", Total Stroke
80", Complete with Accessories

PRESS—HYDRAULIC WHEEL

400 ton Chambersburg Hydraulic Wheel Press, Motor
Drive

STRAIGHTENERS AND BAR TURNING MACHINES

Type "A" Medart-Brightman Bar Turning Machine,
M.D., Capacity 1" to 4" diameter
Type "B" Medart-Brightman Bar Turning Machine
M.D., Capacity 3" to 6" diameter
1/2" Shuster Straightening & Cut-Off Machine Motor
Driven, With 16" Cut-Off
1/2" Wells Straightening & Cut-Off Machine Motor
Driven, With 20" Cut-Off
1/2" Wells Roller Type Straightening & Cut-Off
Machine, Arr. M.D. With 22" Cut-Off
No. 5 Kane & Rasmussen Straightener, Belt Drive,
Capacity Angles 4x4 1/2", Rounds & Squares 2 1/2",
Flats 3 1/2" x 1"

PRESS—KNUCKLE JOINT

No. K-200 30 Clearing Knuckle Joint Press 200 Ton
Capacity 1" Stroke, 31" Between Uprights
No. 24K Bliss Knuckle Joint Press 400 Ton, 4"
Stroke, 20 x 20" Bed Area

PRESSES—STRAIGHT SIDE

#87 Bliss Reducing Press, V-Belt Motor Drive 16"
Stroke, 11" Between Uprights
300 ton Bliss Press Single Crank Double Geared 10"
Stroke, 40 1/2" x 33 1/2" Bed Area
#306 1/2" Bliss Press, Motor Driven, 7" Stroke, Bed
Area 27" x 27"
#305 Bliss Press, Motor Driven 12" Stroke, Bed
Area 24" x 24"
Ferracute Straight Side Punch Press, 100 Ton, 3"
Stroke, 45 x 36" Bed Area
M & S Straight Side Punch Press, 37 Ton, 5 1/2"
Stroke, 15 x 15" Bed Area

PRESS—TOGGLE DRAWING

No. 185 Toledo 1400 ton Single Crank Press, 26"
Stroke of Plunger, 18" Stroke of Blank-holder,
Bed Area 72" x 72"

PUMP—VERTICAL TRIPLEX

2 1/2" x 8" Aldrich Vertical Triplex Pump, Capacity
37 GPM at 1500 lbs. Pressure

PUNCH—BEAM

Size B Lums & Allstatter Beam Punch & Coping
Machine, Capacity to punch 2 or more holes in
flanges or 6 or 8 holes in web of 24" and smaller
beams, and cope sections of same size and smaller
beams, channels, etc.

PUNCH—HORIZONTAL

No. 1 Hillis & Jones Horizontal Punch, Capacity
1/2" thru 1"

PUNCH & SHEAR COMBINATIONS

Style G Cleveland Punch & Shear Double End 48"
Throat, Capacity Punch 2" Thru 1"
Style G Cleveland Punch & Shear Single End 60"
Throat, Capacity Punch 2" thru 1" plate
Style EF Cleveland Double End Bar & Angle Shear
Motor Driven, Completely Equipped, NEW 1947
Style EF Cleveland single end arranged or geared
Motor Drive, 72" Throat Capacity Punch 1 1/2"
thru 1"

No. 48 Buffalo Armor Plate Single End Punch &
Shear, Direct Motor Drive, Capacity Punch 1 1/2" x
1", Shear 2" Rd. 1 1/2" Sq.
No. 2 Long & Allstatter Double End Throats 60" and
42", Capacity Punch 1" thru 1"

PUNCH—MULTIPLE

Size G Long & Allstatter Multiple Punch, Motor
Driven 8'6" Between Housings, Complete with
Spacing Table Automatic Spacing Indicator & Auto-
matic Table Adjustment

RIVETERS

Chambersburg Engr. Co. Hydraulic Riveter 10'6",
Standard Riveting Attachments
125 ton Hanna Bull Riveter, 75" Reach, 24" Gap,
Capacity 1" Rivet Cold & 1 1/2" Hot

ROLLING MILLS

3 x 5 1/2" Busch Three High Mill
4 x 7" Standard Single Stand Two High
8 x 4 1/2" McWilliams Single Stand Two High
10 x 12" Cold Rolling Mill 3 Stand 3 High
12 x 24" Waterbury Farrel Single Stand Two High
18" x 30" Farrel Two Stand Two High
20" x 30" Mesta Single Stand Two High
20 x 36 Farrel 2 Stand 2 High
20 x 40" Mackintosh Cold Reduction Mill
20 x 42" Waterbury Farrel Single Stand Two High
9" Two High Hot Mill for rolling strip steel

ROLLS—PLATE STRAIGHTENING

98" Hillis & Jones Plate Straightening Roll 6 Rolls
1" Dia. Capacity 1" Plate
No. 4 Hillis & Jones Plate Straightening Roll, Motor
Driven, 6 Roll 14" Dia. x 10'4" Wide, Capacity
1" Mild Steel
No. 2B Kane & Roach Straightener, Motor Drive
13 Rolls 8 1/2" Diameter

ROLLS—TAPER FORGING

#1 Ajax Taper Forging Roll, Motor Drive
#5 Ajax Taper Forging Roll, Motor Drive

SAWS

Z-36 Do-All Zephyr Saw, Motor Driven—36" Throat
36" Work Table—New 1917
42" Newton Type U-82-A Heavy Duty High Speed
Cold Saw, Completely Hydraulic, Elec. Equipment
Included, Capacity 16" Round or Square with 48"
Blade
AVEY Band Saw, Motor Driven Capacity 6" Round
or Square

SHEARS—ALLIGATOR

No. 1 1/2 Doelger & Kirsten Alligator Shear Motor
Driven, Capacity 2" Round
No. 2 Doelger & Kirsten Alligator Shear Motor
Driven, Capacity 3" Round
No. 3 Doelger & Kirsten Alligator Shear, Motor
Driven, Capacity 4" Round, 3 1/2" Square

SHEARS—ANGLE

No. 3 Hillis & Jones Double Angle Shear, Capacity
6 x 6 x 1", Motor Driven

SHEAR—BAR

No. 1 Long & Allstatter Bar Shear, Motor Driven,
Capacity 2" Round, 1 1/2" Square

SHEAR—BILLET

No. 6 Mesta Billet Shear, Motor Driven, Capacity
4" Square Billets

SHEARS—GATE

8' x 1" Cincinnati Gate Shear, Motor Dr.
9' x 3/4" Bertsch Gate Shear, Arr. M.D.
120" Morgan Gate Shear, Motor Driven, Hydraulic
Holddowns, Complete with pump and motor, Ca-
pacity 1 1/2" Mild Steel

SHEARS—ROTARY

No. 50 Quickwork Rotary Shear, Motor Drive, Ca-
pacity 3/4" Mild Steel
No. 250 Kling Rotary Shear, Arr. Motor Drive, 36"
Throat Capacity 1/2" Plate
No. 500 Kling Rotary Shear, Motor Driven, Capacity
1/2", Complete with circle cutting, hanging and
joggling attachments

SHEARS—SQUARING

13' x 3/4" Dreis & Krump All Steel
10' x 1/2" Niagara Overdriven Shear
8' x 5/16" Thomas Squaring Shear, Motor Drive

SLITTERS

Yoder GH-36 Gang Slitter & Leveling Machine,
Capacity 4 cuts 3/4" to 13 cuts 3/16", 8 Leveling
Rolls 44" x 5" Dia. Motor Drive
30" Torrington Slitter, Arr. Motor Drive, Capacity
4 cuts, 400" Gauge 30" wide
#621 Torrington 48" Slitter, Arr. Motor Drive with
Slip Clutch Recoiler

STRAIGHTENERS

No. 4 Medart Straightening Machine, Arranged for
Motor Drive, Capacity 2 1/2" to 6" Incl. Round Bars
No. 4 Sutton Straightening Machine, Motor Drive,
Capacity 2" to 6" Round, Timken equipped
Kane & Roach Rotary Straightener, Capacity 1/2"
O.D. and smaller

SWAGING MACHINES

#112 Ems Machine Co. Rotary Swager, Arr. M.D.—
Capacity Tubing 4", Die Length 18"—New 1945
No. 8118 Langeller Swaging Machine, M.D., Capacity
3/4" Tubes, 4 1/2" Solids, Hot
Waterbury Farrel Triple Die Swaging Machine, Ca-
pacity Tubes 1/2" to 4", Motor Driven

TESTING MACHINES

10,000# Amaler Hydraulic Universal Testing Machine
60,000# Biehle Universal Hydraulic
200,000# Elmes Compression Testing Machine, Hy-
draulic Type
800,000# Hydraulic Chain Testing Machine

WELDER

Union Melt Type "U" Model CM21 Welder 1000
Amp. Transformer, Capacity up to 3/4" in stain-
less steel

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THE CLEARING HOUSE

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VERT. & HOR. BORING MILLS

3" bar Univ. Table Type, S.P.D.
3" bar Yoder Table Type, 72" spin. to outer support, 30" spin. to table, 1942
3 1/2" bar Landis #35, Floor Type
4" bar Foote-Burt, hvy., floor type, 1942
4" bar Universal Table Type, 96" spin. to outer support, 60" spin to tbl., 1943
4" bar Lucas #42, Table, 1945
4" bar Landis #40, Floor Type
5" bar Fisher, Floor Type, 1942
6" bar Sellers, Floor Type, 1942
No. 25T G & L Table, 2 1/2" bar, '42
30" Colburn, 1 turret head, M.D.
36" Bullard Spiral Dr., 4 Jaw, Coolant
36" King Side Hd., 1942
42" King Side Hd., 1943
48" N.B.P. Car Wheel
No. 49 Heald Borematic, dble. end, 6 spin., late
72" Cincinnati, Rapid Production, M.D.
84" Cincinnati, Massive Type, P.R.T.
10-16" Betts Ext. Type, AC, M.D.
12" Betts, 2 hds., M.D.

LATHES

No. 4 B LeBlond Boring, Capty. 28" & 20 1/2" (2), 1942
14/16 1/2" x 54" centers Sidney, T.A.
14" x 30" cc Reed-Prentice Tool Room
No. 16 LeBlond Auto. Production, 1942
16/18 1/2" x 28" centers Monarch, T.A.
16/18 1/2" x 54" centers Reed-Prentice, TAPER ATTACHMENT, 1942
18"/20 1/2" x 54" centers LeBlond, late
18/36" x 8" Fay Scott, Gap Q. C. G., M.D.
18" x 120" centers Amer. T. A., Cone, M.D.
25" x 18" Bed LeBlond, M.D.
28"/48" x 14" Harrington, sliding bed gap
30" x 12" Bed LeBlond, T.A., M.D.
30" x 18" Lehmann T. A., '43
36" x 32" Bed N.B.P., 2 carr., T.A.
48" x 20" centers Niles, Grd. Hd., M.D.
48" x 20" centers Simmons, Grd. Hd., 1942
50" x 17" centers LeBlond, 1942
60" x 45" centers MacIntosh Hemphill, 1942

TURRETS & AUTOMATICS

No. 3A W&S, 6 1/4", chuck, T.A., '46
No. 5 J&L, Univ., late
No. OG B&S Auto., late
Nos. 5 & 3 W. & S. Univ., late
No. 1 B. S. Screw Mach., new 1945 (3)
Nos. 4 & 2 W. & S. Univ., late
No. 1L Gisholt Univ., New 1942 Bar

No. 4 Gisholt Univ., Bar, 1942
1 1/2" Oster No. 601 Turret
No. 5 D-2 Potter & Johnston '42
No. 4H-12" Libby Slid. Bed Gap (5)
1 1/2" Conematic, 8 spin. (4)
1 1/2" New Brit. Gridley, 6 spin., late (2)
2 5/8" Acme-Gridley RB8 Automatic, 8 spin., '44

Model 65 New Britain-Gridley 6 spin. Work rotating type, new 1943
No. 9DT Potter Johnston Automatics (2)

RADIAL DRILLS

5' 13" col. Morris, 1945
3' 11" col. Fosdick, 1943
No. 3BL Natco, 24 spin., 1943
2-B-8 Edlund 8", 1 spin. (2), 1942
2 1/2" Amer. Tri. Purp., 9" col., M.D.
3 Spin. Leland-Gifford, #1 LMS, 1943
6" Amer. Tri. Purp., 16" col., M.D.

7" Carlton, 17" col., 2' extra high, 1943

21" Royersford, M.D., new
42" Bausch Radial Tapper, 1/2" capty., 1941
No. 513 Baker, Heavy, 15 H.P.

MILLING MACHINES

No. 0 Brown & Sharpe, M.D.
No. 1A Simmons, Microspeed, M.D.
No. 2 Van Norman Duplex
4" Rice Barton Spline, 1942 (2)
12" x 102" Lees-Bradner Thread Miller
1848 K. & T. Simplex, 1944
24" x 24" x 16" Ingersoll Planer Type, 4 swivel hds., 20 h.p., AC, M.D.
#1—8 Kent Owens, Hyd.
#2H K. & T. Vert.
#2A B. & S. Univ., 1942
#4 Kempsmith Maxi-Mil, Vertical
No. 36 Van Norman, late
No. 4K K&T Hor., 1943

GRINDERS

60" P. & W. Vert. Surface, 1942
#42 Heald Borematic, Lathe
#47A Heald Borematic, Lathe
24" x 240" Norton Cyl., M.D.
17" x 28" 40" Norton Crankpin Dbl. Hd.
10" x 24" Landis Univ., Hyd., 1942
10" x 36" Norton Surface, 1943
No. 72A5 Heald Plain Internal, 1943 (8)
8" x 48" J. & L. Thread, 1941
6" x 18" Norton, Pl. Hyd., Late
Nos. 35 & 31 Excellos (2)
No. 2 Cincinnati, Centerless, late
No. 81 Heald Int. Centerless

PLANERS

24" x 24" x 16" Ingersoll Planer Type, 4 swivel hds., 20 H.P., A.C., M.D.
24" x 24" x 10" Whitcomb, 2 Hds., M.D.
24" x 24" x 66" Rockford Hydr. Shaper-Planer, 2 hds., late
30" x 30" x 10" Whitcomb, 2 Hds., M.D.
36" x 36" x 12" Cincinnati, Hypo, 4 hds., var. voltage, AC dr., 1943
36" x 36" x 12" Woodward Powell 4 Hds., M.D.
36" x 36" x 18" Cleveland Openside, 3 Hds.
42" x 18" x 16" N.B.P. Frog & Switch with 50 h.p., AC, M.D.
42" x 42" x 10" Cleveland Open, 3 hds., M.D.
48" x 48" x 26" N.B.P., 4 hds.
48" x 48" x 16" Gray, 1942
54" x 48" x 16" Niles, 4 Hds., Rev., M.D.
60" x 60" x 26" N.B.P., 4 hds.
84" x 84" x 26" Betts, 4 hds.

PRESSES, PUNCHES, ROLLS SHEARS

Multi Punch, No. 7 H. & J., 14" throat #20 Bliss O.B.I.
250 ton WATSON STILLMAN HOR. HYD. CRANKPIN AND FORCING PRESS
56 ton Diamond Grd. O.B.I., new, M.D.
55 ton Diamond Fly. O.B.I., new, M.D.
31 ton Diamond Grd. O.B.I., new, M.D.
30 ton Diamond Fly. O.B.I., new, M.D.
72" Clev., S.E. Punch, 1 1/4" x 1"
36" x 16" Ga. Niagara, 18" Gap
10" x 3/4" Hilles & Jones 7 Roll Straightener, AC, M.D., late type
15" x 3/4" Wickes Pvr. Rolls, M.D.
10" x 1/2" N.B.P. Rolls, Pvr., AC, M.D.

MISCELLANEOUS

GEAR SHAPER, No. 75 Fellows
HAMMER, Board Drop, 5000# Chambersburg, 1943
HAMMER, 2500 lb. Chambers Double Frame, Drop Forge, air operated
HAMMERS #4B & 4-I, Nazels, M.D.
KEYSEATER, No. 0 Baker, M.D.
KEYSEATER, No. 5 M. & M.
SAW, 6" Royersford, M.D., new
No. 24ML Duall Saw
SHAPER, 24" Milwaukee Motorized
SLOTTER, 20"-24" Dill, M.D.
SLOTTER, 48" N.B.P., grd., late

CABLE ADDRESS—
Benmachine, New York

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BG1 Type 482 KELLER Automatic Duplicating Machine, three dimension, 24" x 48"
20/24" GOULD & EBERHARDT Industrial Universal Shaper, 1944
28" OHIO Shaper, power downfeed, 1941
32" OHIO Shaper, power downfeed, 1942
36" OHIO Extra Heavy Shaper, 1943
48" x 28" NEW HAVEN Geared Head Lathe
6" CINCINNATI BICKFORD Radial Drill, 15" column, motor on arm
42" x 42" x 12" INGERSOLL Planer Type Mill, adj. roll, 4 heads

O'CONNELL MACHINERY COMPANY
1821 Niagara Street Buffalo 7, New York

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ROLL LATHE

18" Lewis Worm Drive Roll Lathe. Bed 16 1/2" long; between centers 10 1/2". 6' table, extra 18" necking table. Direct coupled 10-15 HP Reliance 230 volt DC motor, 400-1600 RPM. Head has worm and helical gearing. Low speed range 0.711 to 2.844 RPM. High speed range 2.963 to 11.852 RPM. Oil Pump 3/4 HP AC. Lathe Serial No. PM8888. Built end 1942. First class condition.

Immediate delivery.

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30/35"x40" (32" centers) Lehmann "Hydratol" 16-speed Geared Head, Q.C.G., standard carriage, also special boring carriage, including 30 HP. Motor 3/60/-220 V. and 4-jaw Steel Body Chuck.

FOUR SLIDE FORMING MACHINE, S4F

Equipped for making staples for railroad ties.

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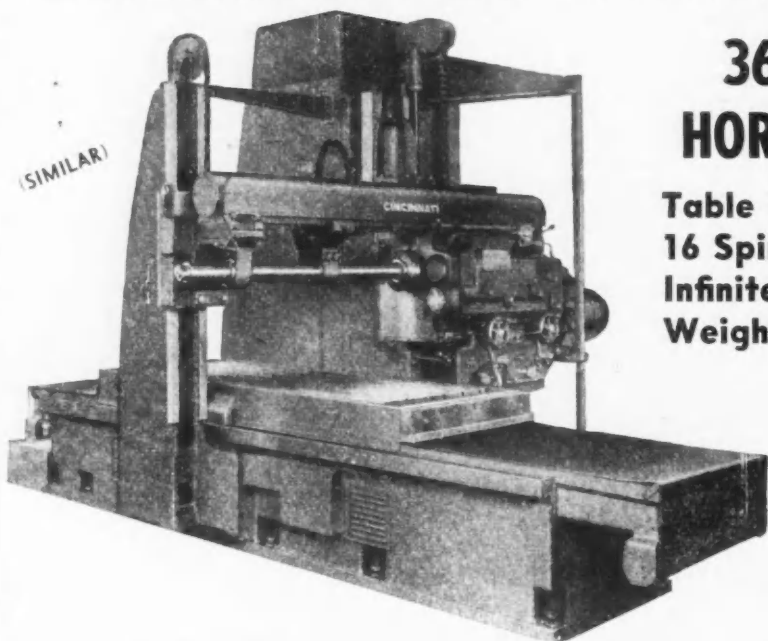
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36"-72" CINCINNATI HORIZONTAL HYDROTEL

Table Working Surface 36" x 93"
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Infinite Number of Feed Rates
Weight Approx. 50,000#

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(ADJ. RAIL)
60"x54"x10' DAVIS & THOMPSON
OPENSIDE

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3. One Toledo #613, 42" heavy duty slitter with adjustable 8" cutters, 20 HP new G.E. motor, and 2—sleeves for mounting 8"—slitting cutters for narrow cuts, with knives and spacers.
4. One Winder with slip clutch, 7 1/2 HP motor, and 12" diameter x 28" long collapsible drum.
5. One Cincinnati Centerless Grinder No. H-2005 E, with Emery Wheels and self feed.
6. Five #6 Rochester Heavy High Speed Hammers, without motors. Some parts missing, can be supplied.
7. One 24" x 6' gas annealing furnace.
8. One 2 HP portable air compressor.
9. One Morey #2-1942 Turret Lathe.
10. One Cincinnati Automatic bar cut-off machine.
11. One Light Mill Winder for strip steel.
12. One 2" capacity tube forming machine with several sets forming rolls.
13. One #7 Rochester High Speed Hammer.
14. One 36"-gang slitter for sheets with 5 HP motor.

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| 17/32" | 1.55 ea. | 45/64" | 2.74 ea. | 7/8" | 3.83 ea. |
| 35/64" | 1.79 ea. | 23/32" | 2.74 ea. | 57/64" | 4.02 ea. |
| 9/16" | 1.79 ea. | 47/64" | 2.97 ea. | 29/32" | 4.02 ea. |
| 37/64" | 1.90 ea. | 3/4" | 2.97 ea. | 59/64" | 4.21 ea. |
| 19/32" | 1.90 ea. | 49/64" | 3.09 ea. | 15/16" | 4.21 ea. |
| 39/64" | 2.02 ea. | 25/32" | 3.09 ea. | 61/64" | 4.59 ea. |
| 5/8" | 2.02 ea. | 51/64" | 3.45 ea. | 31/32" | 4.59 ea. |
| 41/64" | 2.26 ea. | 13/16" | 3.45 ea. | 63/64" | 4.87 ea. |
| 21/32" | 2.26 ea. | 53/64" | 3.64 ea. | 1" | 4.87 ea. |

12 or more drills—10% discount

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50" x 28" M.D.
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Single Frame Steam Hammer

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Torrington 48" x 1/16" Slitter.
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Boring Mills, 24"-38"-42"-52"-72".
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Mills, Plain & Vertical Nos. 3 & 4 Cin.
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Shear, Niagara, Squaring 11" x 10 ga.
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3—30" Ohio Mill Type Lifting Magnets
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48"x30" N-B-P grd. head
42"x32" N-B-P grd. head
32"x16" Lodge & Shipley, G. H.
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24"x21" American, motorized
24"x11" Greaves, grd. head
20"x16" Centers LeBlond, 1942
20"x10" Springfield, G. H.
18"x36" Centers LeBlond, 1942

MILLING MACHINES

#4 Cincinnati, Universal
#4 Cincinnati, Plain
#3 Kempsmith, Plain Maxmiller
#2M Cincinnati, Plain
#1B Milwaukee, Plain
#2G Kempsmith, Universal
#3-24 Cincinnati Hydromatic
#000 B & S production

TURRET LATHES

#5 Gisholt, chucking
#4 Gisholt, bar, prosector

MISCELLANEOUS

24" Gemco Shaper, PRT, never used
16" American Shaper
12" Hendey Toolroom Shaper
72" Niles Vert. Boring Mill
60" Cincinnati Vert. Boring Mill
54" Colburn-Consolidated Vert. Boring Mill
48" Colburn-Consolidated Vert. Boring Mill
36" Rogers Vert. Turret Mill
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14"x60" P & W Hydr. Surface Grinder
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FURNACE, Elec. 10 Ton Heroult
GRINDER, Cyl. 14" x 72" Norton, M.D.
GRINDER, Knife, 120" Springfield, M.D.
GRINDER, Roll, 24" x 240" Norton
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MILLERS, Pl. Nos. 3, 4 & 5 Cincinnati
MILLER, Vert. No. 4 Kempsmith, table 18"x76"
PRESS, Hyd. 250-Ton Chambersburg, 30"x36"
P & S, No. 11 Beatty, 2 1/2"-1 1/2"
ROLLING MILL, A-12 Ajax, 12" x 40"
ROLLING MILL, Prec. 3 Stand, 2 Hi, 10"x12"
ROLLING MILL, 1 Stand, 2 Hi, 22"x40"
SAW, Hack, 13" x 15" Peerless, M.D.
SHEAR, No. 3 Ryerson Friction 52" Blade
SHEAR, Alligator, No. 6 1/2 Mesta, 6 1/2" sq.
SHEAR, Bar, No. 4 United, 3 1/2" sq.
SHEAR, Bar, Macintosh-Hemphill, 2 1/4" rd.
SHEAR, Bar Guillotine, 6x1" alloy steel
SHEAR, Plate, 126"x1/4" United, 30" Gap
SHEAR, Plate 132"x1 1/2" Morgan, 26" throat
SLITTER, Gang, G-36 Yoder, 5 cuts, 11 ga.

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UPSETTER, 4" National
UPSETTER, 2" Acme
UPSETTER, 1 1/2" Ajax
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HAMMERS, Pneumatic, Nos. 48 & 68 Nazel
HAMMER, Steam Drop, 2000# Chambersburg
HAMMERS, Steam Forging, 2500, 6000 and 8000
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- 1—5 Ton Shaw-Box—Double box girder, 3 motor, a.c. 3 ph. 60 cy. 440 volts, pendant push button floor control, SPAN 60 ft.
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- 4—#2 (8' table) Wheelabrator Tablast.
- PRICE EACH \$2,500.00
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- American Dustube collectors
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- 15—Type W Rotor Clones, all sizes

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No. 6 Brown & Sharpe
No. 2 Brown & Sharpe
1% Greenlee, 6 spds.
No. 61 New Britain, 8 Spdl.-2 1/4"

BORING MILLS

36" Rogers
72" Cincinnati
84" Betts

DRILLS

No. 150 Baker
No. D-8 Colburn, No. 6 M.T.
No. 2 LMS-26"-2 Spdl. L-G (1945)
No. 2MA-9-15"-4 Spdl. Ave
No. 2 LMS-26"-4 Spdl. L-G
No. 4 BL Natco-36 spds.
7"-15" Col. American Univ. Radial

GEAR MACHINERY

No. 712 Fellows Auto. Indexing (1942)
No. 18-H Gould & Eberhardt
No. 13 Gleason Tester
11" Gleason Bevel Generator
72" Cincinnati Gear Cutter

GRINDERS

4"x12" Landis, Model H (1942)
4"x18" Landis, Model H (1942)
6"x18" Norton Type C Plain (1943)
6"x30" Norton Type C Plain (1943)
10"x18" Norton Type C Plain (1943)
Norton Motor Driven Plain Grinders
6"x18" to 240"
12"x36" Landis Univ. Type LCH (1945)
No. 5 Gove Hydraulic Surf. (1941)
24"x24"x84" Mattison Hydr. Surf.
No. 34 Abrasive Surf. (1943)
No. 22-12" Heald Rotary Surface
No. 25A-24" Heald Rotary Surf. (1943)
72A-3 Heald Internal Gdr. (1943)
72A-5 Heald Internal Grinder (1942)
No. 5 Bryant Internal Grinder
No. 24-26" Bryant Internal (1942)
10"x72" Colonial Broom GDR.

HORIZONTAL BORERS

No. 31 Lucas 3" Bar
No. 3A Universal 3" Bar
No. 26-4 1/2" Bar DeRance (1943)
No. 48B Heald

LATHES

14"x5" Hendey
13"x5" Sebastian
16"x54" Centers LeBlond
36"x30" Lodge & Shipley
36"x48"x18" Lehman Hydrotrol (1945)
48"x20" Simmons (1942)
50"x17" Centers LeBlond (1942)
8"x15" Sundstrand (1942)
10"x22" Sundstrand, Model AA (1943)
12"x18" Lipe-Carbo
16"x33" Fay Automatics (1942)
20"x25" Fay Automatics (1942)

MILLING MACHINES

No. 4 Cincinnati Plain (1943)
No. 2H Milwaukee Vert. (1942)
No. 2 Cincinnati Vert. (1942)
No. 2M Cincinnati Vert. (1941)
No. 3 Cincinnati High Power Vert.
No. M-18 Milwaukee Simplex (1942)
No. M-24 Milwaukee Simplex (1942)
No. 1-18 Cinn. Mfg. (1940)
No. 2-8 Sundstrand Electromil (1942)
No. 4-48 Cinn. Plain Hydromatic (1942)
No. 45-48 Cinn. Plain Hyd. Tracer (1942)
No. 58-90 Cinn. Plain Hydromatic (1943)
4"x8" Hanson-Whitney Thread Miller
4 1/2"x12" Pratt & Whitney, Model C
6"x20" Pratt & Whitney, Model C
6"x36" Lees-Bradner Thrd. Miller (1942)
6"x132" Pratt & Whitney Thrd. Miller
38"x40"x10" Fitchburg Duplex (1943)
24"x24"x12" Ingersoll Adj. Rail
36"x36"x10" Ingersoll adj. rail, 4 hds.
72"x6" Ingersoll Face Miller

PLANERS

36"x36"x12" Cincinnati
36"x36"x18" Gray
48"x36"x14" Gray
48"x48"x12" Cincinnati

TURRET LATHES

No. 2 B. & S. Screw Machine, Wire Feed
No. 5 Warner & Swasey (1942)
No. 5 Bardens & Oliver (1942)
No. 5 Foster, Bar Feed (1942)
No. 2A Warner & Swasey
1-H Libby, Extra Long Bed
No. 1-H Libby, 6 1/4 Spdl. Hole
No. 4A Warner & Swasey, 7 1/2" Spdl. Hole

MISCELLANEOUS

18" Dill Slotter
No. 22-C Rasine Shear Cut Saw
No. 0 Bakewell Tapper
No. 20 Bliss O.B.I.
Model H-7 Micromat Hone
Model H-705 Micromat Hone
Model 200 Micromat Hone

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2 1/2" No. 25 T Giddings & Lewis.
3" bar Universal horizontal.
3" No. 31 Lucas.
3 3/4" No. 32 Lucas horizontal.
3 3/4" No. 5A Defiance.
4 1/2" No. 33 Lucas horizontal.
7" bar Barrett cylinder boring.
52" King vertical.
100" Niles-Bement-Pond, heavy.
24" & 42" Bullard vertical.
Vernon vertical jig borer.
Pratt & Whitney jig borer.
No. 42 Heald Borematic, 2 spdl.
Nos. 47A & 48A Heald Boreomatics.

BROACHES

2 ton American vertical hydraulic.
Twin Ten Oilgear hydraulic.
No. 3XA Oilgear hydraulic.
No. 3 Lapointe screw type.
No. 1 Foote Burt duplex surface.
9 ton American surface.
30 ton No. V48 American surface.

DRILLS, RADIAL

7'-16" American.
6'-15" Cincinnati Bickford.
6'-16" Dreses.
4' American triple purpose.
4' Cincinnati Bickford full univ.
4' Hammond elbow arm.

DRILLS, MULTIPLE AND MISCELLANEOUS

No. B4A Natco multiple.
42 spindle No. B16 Natco.
34 spindle No. 30 Natco multiple.
22 spindle No. 14 Natco multiple.
24 spindle No. 2 Baush multiple.
8 spindle No. 11 Natco multiple.
12 spdl. No. 25 Baush hydr. rail.
12 spindle No. 39 Natco rail.
Baush double end multiple.
No. 15 1/2 Foote Burt hydraulic.
Munson heavy double end borer,
center, drill or taper.
No. 4 HH Baker horizontal 2-way.
Barnes 2 spindle deep hole.
5 spindle Detroit horizontal.
No. 30 HO Baker inverted.

MILLING MACHINES PLAIN, UNIVERSAL, VERTICAL

Fray All Angle vertical, hydr. feed.
No. 2-AS Milwaukee plain.
No. 3 Van Norman duplex.
Nos. 3B & 4B Milwaukee plain.
No. 3 Cincinnati universal.
No. 2 Cincinnati vert., rotary table.
No. 2M Cincinnati vertical.
No. 2H Milwaukee vertical, rotary
table.
No. 3 Cincinnati vertical, one with
rotary table.
No. 3V Van Norman vertical.
No. 3H Milwaukee vertical.
No. 4H Kearney & Trecker vert.
No. 4 Cincinnati high power vert.
Nos. 1-18, 2-18 & 2-24 Cincinnati.

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30" x 24" x 6' Liberty openside.
36" x 30" x 10' Cleveland openside.

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6" Pratt & Whitney vertical.
16" Gemco.
16", 20", 24", 28" Gould & Eberhardt.
20" & 24" Gemco universal.
24" Columbia universal.

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National High Duty Upsetting & Forg. Machs. guided
overarm heading slides, susp. slides, 2" 3",
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Ajax Upsetting & Forg. Machs. susp. slides
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Ajax and Acme Upsetters, not susp. slides
1/4", 1", 1 1/2", 2 1/2", 3"

W. W. Bulldozers High Speed #1, #24

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Single and Double End Punches, wide variety of
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Open Back Incl. Presses 8-ton to 50-ton

Solid Back Presses 20 to 50-ton

Trimming Presses 50- to 185-ton

Bradley Hammers, wide variety Upright Helve &
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Nazel Air Forg. Hammers #1-B, #2-B, #6-B

K. & R. Angle Bending Roll, 3/8"x3/8"

Ryerson Serpentine Throatless Shear 1/2"

Bending Rolls 8", 3/4", 1 1/2", 1 3/4"

Niles Plate Leveller 60"x1/2"

**BOLT, NUT & RIVET MACHINERY,
COLD HEADERS, COLD BOLT TRIM-
MERS, THREAD ROLLERS, SLOTTERS,
HOT HEADERS AND TRIMMERS,
COLD AND HOT PUNCH NUT
MACHINES, POINTERS, THREADERS,
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Diamond Face Grinder, Segment Wheel 36", Table
84x24", Hydraulic operated

Landis Motor Driven Pipe Threader 8"

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AJAX 1 1/2", 3 1/2" Upsetter and Forging Motor Drive
BIRDSBORO 325 Ton Vertical Press Hydraulic New 1942
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CLEARING 50 Ton Hyd. Press New 1940
CRANES from 5 to 30 ton cap. 230 volts DC
DILL 20-24" Vertical Slotter Motor Drive
LAKE ERIE 500 Ton Vertical Press Hyd. New 1944
LEBLOND #2 Riffing & Reaming Machines
NILES 600 Ton Horiz. wheel press Motor Drive
NILES 100" Vertical Boring Mill 2 swivel heads, MD
NIAGARA 1000, 1200 KVA Transformers
QUICKWORK 3/4", 1" cap. rotary shear Motor Drive
UNITED ENG. 2,000-ton Hyd. Steam

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One brand new Model AS Vertical Centrifugal
Casting Machine, 5 H.P., driving unit with speed
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60 cycle, 3 phase power, complete with control
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Barnesdrill—#307 Single Spindle Hydraulic
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Planer—36" x 36" x 12' Niles-Bement-Pond

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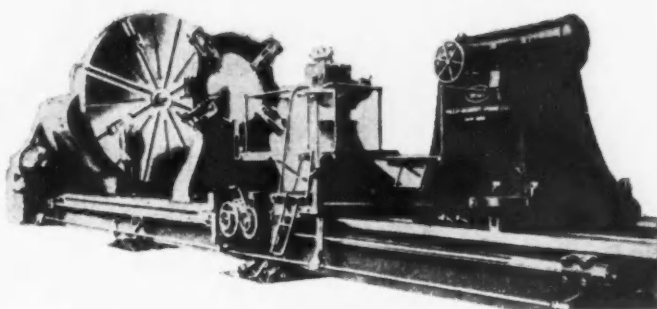
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ENGINEERED REBUILT MACHINE TOOLS

BUILT MACHINE TOOLS

14' x 50' (34' centers) NILES LATHE



14' x 50' (34' centers) NILES SCREW CUTTING ENGINE LATHE. Power rapid traverse to carriage, compound rest. Arranged for motor drive.

SPECIFICATIONS:

Max. swing over ways 174"
Swing over carriage, gap piece out 153"
Swing over carriage, gap piece in 138"
Takes between centers, max. 408"
Steel spindle bearings, front 22"
Steel spindle bearings, rear 14"
Diameter of face plate 144"
Face of steel internal driven gear 8"
Carriage bearing on ways 88"
Feeds 27; range per RPM .010 to .400
Threading range .100 to 4"

Steady rest range, dia. 28" to 50"
Tailstock bearing on bed 87" x 72"
Tailstock spindle—12"; adjustment 24"
Speed range, RPM .233 to 23
Lead screw diameter 3 7/8"

EQUIPMENT:

Main drive motor, power rapid traverse motor and motor for moving tailstock. Compound rest, four face plate chuck jaws, steady rest.
Net weight, appx. (lbs.) 190,000
Boxed wgt. appx. (lbs.) 210,000

LATHES

44" Hyde Park Roll Turning
90" Putnam Driving Wheel
Putnam and Niles Axle Turning
Niles Gap Type Journal Turning
60" x 28" Niles, Heavy Forging
50" x 50" Pittsburgh Engine
48" x 18" American Super-Productive
42" x 32" American High Duty
36" x 24" Niles "Timesaver"
36" x 20" Lodge-Shipley, 18-Speeds
30" x 10" American, 12-Speeds
24" x 12" American, 12-Speeds
20" x 10" Lodge-Shipley, 12-Speeds
18" x 6" American, 12-Speeds
16" x 6" American, 8-Speeds
10" x 20" Monarch "Sensitive Precision"

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ENGINEERED
Machine Tool
REBUILDING

LATEST TYPE NEARLY NEW MACHINES

AUTOMATIC SCREW MACHINES

BROWN & SHARPE #2G High Speed, Latest Type
BROWN & SHARPE #4-2" cap. Latest Type
CONOMATIC 2 1/2"—6 spindle, Latest Type
GOSS & DeLEEUW 8" Automatic Chuck, 5 spindles
BORING MILLS—Horizontal
CINCINNATI GILBERT 3 1/2" bar, floor type, latest
DETRICK & HARVEY 4" bar, Floor Type, M.D.
GIDDINGS & LEWIS #25, 2 1/2" bar, M.D.
LUCAS #41, 3" bar, Latest Type
NILES DEMENT POND 5", 6", bar, floor type
UNIVERSAL 3" bar, high speed, latest type

BORING MILLS—Vertical

BULLARD 18", 6 & 8 spindle Multiautomatic, Latest Type
BULLARD 36" Vertical Turret, Spiral Drive, Latest
BULLARD 61" "Maxi-Miller," 2 heads, Motor Drive
KING 62", 2 swivel heads, PRT, M.D.
NILES 58"-44" Vertical Turret with side head, M.D.
NILES 100", 2 swivel heads, PRT, DC, M.D.

GEAR CUTTING EQUIPMENT

FELLOWS #61, #7A, #72, #75, #61A, #77 High Speed Gear Shapers, latest type
FELLOWS #2, #622, Gear Shaper, High Speed, latest
GLEASON 3", 12" straight bevel generator, Latest Type
GOULD & EBERHARDT #12H, #12HS Hobber, Latest
GRINDERS—Cyl.—Plain & Univ.

BROWN & SHARPE #1, 2, Universal, Latest
BROWN & SHARPE #5 Plain, 3 x 12, Latest Type
BROWN & SHARPE #20 10 x 18 plain, latest type
CINCINNATI 6" x 18" Plain, Model EA, Hyd., latest
LANDIS 4x12, 4x18, Type H Plain Hyd., Latest
NORTON 6x18", 10x72", 14x36", Type C, Plain, latest
GRINDERS—Miscellaneous

CINCINNATI #2 Centerless "Filmatic," latest
CINCINNATI Centerless Lapper, Model ED, Latest
HEALD 72A3, 72A5 "Gagematic," Internal, Latest
HEALD 75A, 72A3, 72A5, 74, 70A Internal, latest
GRINDERS—Surface

BLANCHARD #16, 24" chuck, Motor Drive

GALLMEYER & LIVINGSTON #35, 8"x24", Latest
HEALD #22 Rotary, 12" chuck, latest type
HEALD 25A—rotary—16" and 30" chuck, hrd., Latest
THOMPSON 12x12x24 Type D Hyd., Latest Type
THOMPSON 12x12x40 Type D Hyd., Latest Type

LATHES—Engine & Mfg.

AMERICAN #6"x360" centers, 2 carriages motor drive
JONES & LAMSON "Fay" 20x25" automatic, latest
LEHMANN 16x30" centers, TIMKEN, latest type
LOSING 4x60, 4x84, 8x60, 8x108, 5x34, Latest
MONARCH 12"x54" centers, Timken, Latest Type
MONARCH 10"x20" centers, Model EE, Timken, latest
MONARCH 22"x156" centers, 3 carriage, Timken Bearing, motor drive

NILES 72"x62" centers, comb. Boring & Turning, M.D.
NILES 30x50" Boring, Timken, Latest Type
NILES 48x87" centers, comb. boring and turning, M.D.
PRATT & WHITNEY 16"x60" centers, taper att., M.D.
SPRINGFIELD 16"x30" centers, Timken, latest type
WARD, HAGGAS & SMITH—18/30x66" centers gap.

LATHES—Turret

BARDONS & OLIVER #5, #7, TIMKEN, Latest Type
FOSTER #1FU "Fastermatic," Timken, Latest
GISHOLT #1L, #2L, Universal, Timken, Latest
GISHOLT #3, #4, Univ., TIMKEN, Latest Type
JONES & LAMSON #3, #5, Univ., Timken, Latest
LIBBEY "International" 1-H5, Univ., Timken, Latest
MOREY No. 20, No. 3, No. 4, Timken Bearing, latest
POTTER & JOHNSTON #5D, #5D2E, Timken, latest
WARNER & SWASEY #1A, Univ., Timken, latest
WARNER & SWASEY #2A Universal, Timken, Bar & Chucking, Latest Type (Preselector)

MILLING MACHINES—Mfg.

INGERSOLL 42"x38"x12" adj. rail, 4 heads, AC, M.D.
INGERSOLL 32x24x16" Planer Type, 2 heads, AC, M.D.
INGERSOLL 30x24x12" adj. rail slab, M.D.

MILLING MACHINES—Plain

BROWN & SHARPE #2, Light Type, Timken, Latest
BROWN & SHARPE #2B, Timken, Latest Type

CINCINNATI 0-8 Automatic rise and fall, Latest

CINCINNATI 1-12, 2-18 Auto., Latest Type
CINCINNATI #4 TIMKEN, Motor Drive
CINCINNATI 4-36 Hydromatic, Simplex, Latest Type
KEARNEY & TRECKER #3, 4, Heavy, Timken, M.D.
KEMPSMITH #4 Maxmill, Timken, latest type

MILLING MACHINES—Thread

HANSON & WHITNEY 1" x 9" centers, Latest Type
LEES BRADNER 12" x 24" centers Model HT, Latest
MOREY 12 x 30", 60", 120", 190" centers, Latest
PRATT & WHITNEY "x60" centers, Model C, Latest

MILLING MACHINES—Universal

CINCINNATI #3 High Speed Dial, Latest Type
KEARNEY & TRECKER #2 Heavy, Timken, M.D.
KEMPSMITH #4 Maxi-miller, Timken, Latest
VAN NORMAN #12, #36, Timken, Latest Type

MILLING MACHINES—Vertical

CINCINNATI #2, #3, #4 Dial Type; Timken; latest
GORTON 9J, hand feed, Latest Type
KEARNEY & TRECKER 3H, Timken, Latest
REED PRENTICE 3VG, Timken, Latest

PRESSES

CLEARING Type DS-1125-32 dbl. action 125 ton, Latest
FERRACUTE #DG-55, 75 ton drawing, Latest Type
LAKE ERIE 500 ton Vert., Hyd., Latest Type

MISCELLANEOUS

AXAX 1 1/2", 2", 3 1/2" Forging and Upsetting, M.D.
BARNES #172, 306H, 307 Vertical Hone, Hydraulic, Self-Oiling, Latest Type
CAMPBELL #401 Abrasive Saw, Latest Type
CINCINNATI 1-30, 3-30, Duplex Vert. Surface Broach, Double ram, Model E.R., Hyd., Latest Type

MICHIGAN #1708A Cutter Reliever, Latest Type
NATCO 4BL Adj. Mult. Spdl. Drill, 36 spdl., Latest
PRATT & WHITNEY (KELLER) Type BL-2110, Type G, Copying, latest type, 2 & 3 Dimensional

PRATT & WHITNEY 1 1/2 Bx50 Rifer, Latest Type
QUICKWORK 3/4" x 1" cap. Rotary Shear—M.D.

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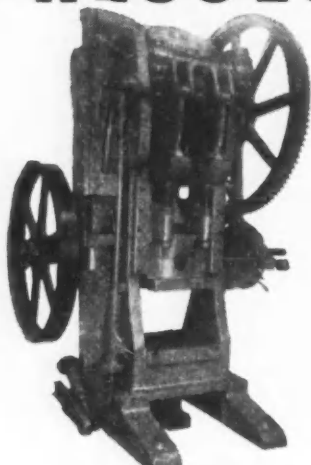
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Cincinnati 36" x 36" x 16 ft. Planer, M. D. Lewis Nos. 3F & 4F Straighteners & Cutters Lucas No. 43 Precision Boring Mill, M.D. National Auto. Nut Tappers—1/4", 3/8" & 1/2" cap.

Waterbury Farrel Cold Headers & Thread Rollers, Nos. 10, 20, 30, 40 & 50.

Woodward & Powell 42" x 42" x 36 ft. Four Head Planer.

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RE-NU-BILT GUARANTEED ELECTRIC POWER EQUIPMENT

| D.C. MOTORS | | | | | |
|-------------|---------|---------|----------|-------|----------|
| Qu. | HP | Make | Type | Volts | RPM |
| 4 | 1500 | Whse. | | 525 | 600 |
| 4 | 1000 | Whse. | | 450 | 600 |
| 1 | 700 | G. E. | MCF | 600 | 130/525 |
| 1 | 600 | G. E. | MPC | 250 | 115/145 |
| 1 | 600 | G. E. | MPC | 600 | 850 |
| 3 | 500 | Whse. | | 230 | 300/600 |
| 1 | 335 | Whse. | MQ | 250 | 300/900 |
| 1 | 275 | Whse. | QM | 230 | 415/850 |
| 1 | 230 | Al. Ch. | | 230 | 700 |
| 1 | 250 | G. E. | MPC | 230 | 400/500 |
| 1 | 220 | Whse. | SK-153.5 | 230 | 2975 |
| 1 | 180 | G. E. | MPC | 230 | 400/1000 |
| 1 | 130 | G. E. | | 800 | 250/750 |
| 1 | 150 | Cr. Wh. | CCM | 230 | 300/1050 |
| 1 | 150 | Cr. Wh. | 65H | 230 | 1150 |
| 10 | 150 | Cr. Wh. | 83H-TEFC | 230 | 860 |
| 1 | 150 | G. E. | MTC | 230 | 250/450 |
| 1 | 100 | Rel. | 1030T | 230 | 400/1300 |
| 1 | 100 | G. E. | CD-175 | 230 | 365/735 |
| 1 | 100/150 | Whse. | SK-200 | 550 | 600 |
| 1 | 125 | EL Dy. | | 308 | 750/1500 |
| 1 | 115 | Cr. Wh. | JHL | 230 | 1200 |
| 1 | 100 | Whse. | SK-182 | 230 | 300/1200 |
| 1 | 50/100 | G. E. | MPC | 230 | 225/450 |
| 4 | 100 | Whse. | SK-180 | 230 | 475/950 |
| 1 | 40 | Whse. | CCM | 230 | 1750 |
| 6 | 75 | Cr. Wh. | 53H | 230 | 860 |
| 1 | 75 | Whse. | SK-180L | 115 | 650 |
| 1 | 85 | Whse. | SK-170 | 230 | 575 |
| 1 | 60 | EL Dy. | 258 | 230 | 525/1050 |
| 1 | 60 | Whse. | SK | 230 | 500/1000 |
| 1 | 50 | G. E. | RC-34 | 230 | 1050 |
| 1 | 50 | Cr. Wh. | CCM | 230 | 1750 |
| 1 | 50 | Cr. Wh. | CMC-65H | 230 | 500/1000 |
| 1 | 50 | G. E. | CD-123 | 230 | 675/1035 |
| 1 | 50 | EL Dy. | 508 | 500 | 194/775 |
| 1 | 50 | Cr. Wh. | CMC-80H | 230 | 380/750 |
| 1 | 15/50 | Cr. Wh. | CMC-81H | 230 | 300/900 |
| 4 | 40 | G. E. | CD-1129 | 230 | 850/1275 |
| 6 | 25/30 | G. E. | CD-105 | 230 | 690/2070 |

MILL & CRANE

| | | | | | |
|---|-----|-------|---------------|-----|-----|
| 2 | 125 | G. E. | CO-1832 | 230 | 825 |
| 2 | 80 | Whse. | Hoist | 230 | 415 |
| 2 | 50 | Whse. | Hoist | 230 | 415 |
| 2 | 30 | G. E. | MD-104 1/2 AA | 550 | 700 |
| 1 | 13 | G. E. | MD-103AA | 230 | 800 |

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(3) #14 Toledo, flywheel type, 3" stroke, swinging adjustable table, 30 ton cap. special flanged ram 8" x 24", belt drive.

(1) #14 Toledo, flywheel type, 3" stroke, vertical adjustable table, 30 ton cap. standard ram, belt drive.

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Tel. Circle 78730

1—10,000# new Shepard Form 23, Motor Driven Trolley Hoist PB control for 220 AC.
1—2000# Cap. Shepard New Form 8 Elec. Hoist for 110/1/60 AC.
1—30 ton Cap. Hand powerhouse Crane, 40' span, very good condition.
1—650 KW Nordberg Westinghouse Diesel Generator Set for 2400/3/60 AC, comp. Very good condition.
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40 ton BROWNING Loco. Crane
35 ton INDUSTRIAL DIESEL Loco. Crane
5—20 & 25 OHIO Loco. Cranes
2—15 ton INDUSTRIAL Loco. Cranes
1—10 ton P&H 40' Boom Gas Cat.
15 ton INDUSTRIAL 50' Boom Gas Cat.
R. C. STANHOPE, INC.
60 East 42nd St. New York 17, N. Y.

D. C. MOTORS & GENERATORS, Etc.

| GENERATORS | | | |
|------------|----------|---------|-------|
| Kw. | Make | Voltage | Speed |
| 500 | West. | 250 | 1100 |
| 330 | Elliot | 250 | 1200 |
| 300 | G. E. | 250 | 1200 |
| 300 | Al. Ch. | 250 | 1200 |
| 250 | G. E. | 125 | 720 |
| 200 | G. E. | 250 | 1200 |
| 200 | Cr. Wh. | 600 | 900 |
| 150 | West. | 250 | 900 |
| 150 | West. | 250 | 1200 |
| 150 | Cr. Wh. | 125 | 1200 |
| 150 | West. | 125 | 1200 |
| 100 | West. | 125 | 900 |
| 100 | G. E. | 125 | 1200 |
| 100 | El. Mch. | 125 | 1200 |

| MOTORS | | | |
|---------|---------|---------|-----------|
| Hp. | Make | Voltage | Speed |
| 765 (6) | G. E. | 550 | 1045/1350 |
| 300 | West. | 125 | 900 |
| 150 | G. E. | 230 | 900 |
| 100 | Rel. | 230 | 400/1200 |
| 100 | G. E. | 230 | 400/1200 |
| 100 | G. E. | 250 | 1750 |
| 100 | Cr. Wh. | 125 | 900 |
| 75 | G. E. | 230 | 500/1500 |
| 75 | Cr. Wh. | 230 | 375/750 |
| 75 | West. | 230 | 635 |
| 60 | West. | 230 | 650 |
| 60 | G. E. | 230 | 480/1100 |
| 50 | West. | 230 | 500/1500 |
| 50 | West. | 230 | 750 |
| 50 | West. | 230 | 885 |
| 50 | West. | 230 | 250/1000 |
| 40 | G. E. | 230 | 400/1500 |
| 40 | Rel. | 230 | 400/1200 |
| 40 | West. | 230 | 1750 |
| 40 | Century | 230 | 1750 |

D. C. AUTOMATIC STARTERS

West. 230
300 West. 125
100 G. E. 230

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17—New—2 ton Shepard-Niles—230 Volts
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1—400 amp. Hansen welder purchased new in 1941. Type WK400, 400 amp., NEMA rated, portable, consisting of 40 volt generator complete with single current control, also polarity switch, driven by a 220/440 volt, 3 phase, 60 cycle motor, complete with push button starter and overload protection. Unit mounted on wheels with solid rubber tires. Serial #220477.

1—400 amp. Hansen welder purchased new in 1943. Type WK400, 400 amp., NEMA rated, portable, consisting of 40 volt generator with polarity switch and driven by 440 volt, 3 phase, 60 cycle motor, complete with Allen-Bradley magnetic type starter, having thermal overload protection and low voltage release. Unit mounted on rubber tired wheels. Serial #235419.

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18", 20", 29", 36", 45", 55", also rectangular magnets, generator reels, controllers.

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1—25-35 ton Morgan 10 ton auxiliary, 60'0" span. 230 volts D.C. Reconditioned 1941.
25 Electric Hoists 1000# to 15-ton capacity, mono-rail type, 220/3/60 or 230 VDC.
Will sell as is or reconditioned. Single and 2 motor. Write for special list cranes and hoists.

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In Stock—Immediate Shipment—Rebuilt and Guaranteed

| OVERHEAD ELECTRIC TRAVELING CRANES | | | | |
|--|-----------|--------|----------|--|
| Tons | Make | Span | Current | |
| 5 | Shepard | 68'2" | 115-VDC. | |
| (With above 148'0" A-Frame Steel Runway) | | | | |
| 7½ | Erie | 78'0" | 220-VAC. | |
| (With above 250'0" A-Frame Runway) | | | | |
| 10 | Northern | 87'11" | 230-VDC. | |
| 10 | Cleveland | 59'0" | 230-VDC. | |

| SQUIRREL CAGE MOTORS | | | | |
|----------------------|------|----------|---------|------------|
| 3-PHASE 60-CYCLE | | | | |
| Qu. | H.P. | Make | Type | Volts RPM. |
| 2 | 40 | AL Ch. | AR | 440 860 |
| 1 | 40 | Master | PA-445 | 440 1200 |
| 8 | 50 | Whse. | CS | 440 900 |
| 1 | 50 | F.M. | H-16-A | 440 900 |
| 1 | 50 | AL Ch. | AR-220D | 440 1158 |
| 1 | 50 | Idéal | AT-445 | 440 1750 |
| 1 | 60 | Whse. | CS-607 | 440 860 |
| 1 | 75 | G.E. | KT-356 | 440 960 |
| 1 | 75 | G.E. | KF-542 | 440 1200 |
| 1 | 75 | Whse. | CS | 440 1750 |
| 1 | 75 | AL Ch. | AR | 2300 1765 |
| 5 | 100 | F.M. | HS-201C | 440 880 |
| 1 | 100 | Whse. | CS-766 | 2300 1170 |
| 2 | 100 | G.E. | KT-556 | 2200 865 |
| 1 | 100 | G.E. | K-544 | 2300 1175 |
| 1 | 100 | AL Ch. | AR | 2200 1160 |
| 1 | 100 | G.E. | I-K | 440 1800 |
| 1 | 100 | Whse. | CS-663 | 440 1750 |
| 2 | 125 | AL Ch. | AR | 440 435 |
| 1 | 125 | Whse. | CS-761 | 440 1750 |
| 1 | 125 | Whse. | CS-772S | 2200 1170 |
| 1 | 150 | G.E. | I-K | 440 690 |
| 1 | 150 | EL Mech. | B.B. | 440 1200 |
| 1 | 150 | Whse. | CS-772S | 2200 1170 |
| 1 | 200 | AL Ch. | AR | 440 600 |
| 1 | 250 | Whse. | CS | 2200 1200 |

| SYNCHRONOUS MOTORS | | | | |
|--------------------|------|-------|------|------------|
| ALTERNATORS | | | | |
| 3-PHASE 60-CYCLE | | | | |
| Qu. | H.P. | Make | P.F. | Volts RPM. |
| 1 | 30 | Whse. | .8 | 220 1800 |
| 2 | 50 | G.E. | .8 | 2200 600 |
| 1 | 60 | G.E. | .8 | 440 1200 |
| 1 | 100 | G.E. | .8 | 440 600 |
| 1 | 100 | Idéal | .8 | 220 900 |
| 1 | 100 | Whse. | 1.0 | 2200 1200 |
| 3 | 100 | Whse. | .8 | 440 1800 |
| 1 | 125 | G.E. | .8 | 2200 900 |
| 1 | 150 | G.E. | 1.0 | 2300 900 |
| 1 | 220 | G.E. | .8 | 440 720 |
| 1 | 400 | Whse. | .8 | 440 600 |

3 new G.E. generators 1000 K.V.A. or 1250 H.P. Syn. Motor: 4160/2300 v 3 p 60 cy. 900 R.P.M. 1.0 PF dir. con. exciters.

| MOTOR GENERATOR SETS | | | | |
|----------------------|------|---------|------|------------------|
| Qu. | KW | Make | RPM. | Volts D.C. A.C. |
| 1 | 5½ | G.E. | 1800 | 250 220/440 |
| 1 | 9 | G.E. | 1800 | 250 220/440 |
| 7 | 25 | Whse. | 1200 | 120/240 220/440 |
| 3 | 50 | Whse. | 1200 | 120/240 440/2300 |
| 2 | 35 | G.E. | 1800 | 125 220/440 |
| 1 | 50 | Lo. Al. | 1200 | 125/240 440/2200 |
| 1 | 75 | Whse. | 1200 | 125 220/440 |
| 1 | 75 | AL Ch. | 900 | 250 2200 |
| 1 | 100 | G.E. | 1200 | 250 440/2300 |
| 1 | 100 | C.W. | 1200 | 250 440/2300 |
| 3 | 150 | C.W. | 1200 | 300 440/2200 |
| 1 | 300 | Whse. | 1200 | 125/250 2300 |
| 1 | 400 | Whse. | 720 | 550/275 2300 |
| 1 | 600 | G.E. | 720 | 300 2200 |
| 2 | 1000 | G.E. | 514 | 600 4150/2300 |

G.E. Rotary Converter, 2025/2565 KW. 225/-285-VDC., 450-RPM., complete with A.C. and D.C. panels and control. 2700 K.V.A. transformer, OISC, 6000-V., 3-Ph., 60-Cy.

| SLIP RING MOTORS—CONSTANT DUTY | | | | |
|--------------------------------|------|--------|---------|------------|
| 3-PHASE 60-CYCLE | | | | |
| Qu. | H.P. | Make | Type | Volts RPM. |
| 4 | 25 | G.E. | MT-526 | 440 840 |
| 1 | 25 | G.E. | MT-332 | 2200 850 |
| 2 | 25 | Whse. | CW-4810 | 220 1150 |
| 1 | 30 | Whse. | ARY | 2300 435 |
| 3 | 40 | G.E. | MT 346 | 550 560 |
| 3* | 40 | G.E. | I-M | 400 1170 |
| 1 | 50 | AL Ch. | ARY | 2200 490 |
| 2 | 50 | G.E. | MT-536 | 2200 1150 |
| 1 | 75 | G.E. | I-M | 220 895 |
| 1 | 100 | Whse. | CW-454C | 550 690 |
| 1 | 125 | AL Ch. | ARY | 440 900 |
| 1 | 150 | G.E. | I-P | 440 1180 |
| 1 | 150 | G.E. | I-M | 2200 1750 |
| 1 | 200 | G.E. | I-M | 2200 600 |
| 1 | 200 | AL Ch. | ANY | 2200 600 |
| 1 | 250 | Whse. | CW-1106 | 2200 380 |
| 1 | 300 | AL Ch. | ANY | 2200 505 |
| 1 | 300 | G.E. | I-M | 2200 1200 |
| 1 | 400 | G.E. | I-M | 2300 900 |
| 1** | 450 | G.E. | MT | 2200 257 |
| 1** | 600 | G.E. | MT-412 | 2200 719 |
| 1** | 750 | G.E. | MT-414 | 2200 700 |
| 1** | 1200 | Whse. | CW | 2200 500 |

*—40-Cy. **—MHI Type 2-Pedestal bearing on cast iron base, complete with REVERSING PRIMARY and MAGNETIC SECONDARY CONTROL.

| TRANSFORMERS (OIL-COOLED) | | | | |
|---------------------------|--------|--------|-----------------|----------|
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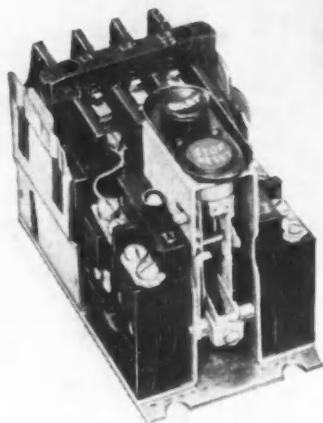


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DETAILS—Your attention is called to numerous important details such as self-finding terminal screws, unique staking of cover screw, handy spring lifters on movable contacts, etc., etc.

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